

FLIGHT

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AND AIRSHIPS

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"FLIGHT" PHOTOGRAPHS

Answering several enquiries, the whole of the photographs appearing in last week's issue on pages 681 to 697 inclusive (in addition to others marked) are "Flight" Copyright Photographs.

EDITORIAL COMMENT



WE have a few suggestions to offer to the R.A.F. Display Committee of next year. The first is that, provided His Majesty graciously gives his consent, the enclosure reserved for Royalties, and also those for lesser but still notable persons, should be situated, not on the south-east edge of the aerodrome, but in the centre of the south-west side. The reason for suggesting this alteration is that the south-west and the north-east are the two longer sides, and so accommodate the majority of those of His Majesty's subjects who are watching the Display. It is certainly necessary that the best view of each event should be presented to the Royal enclosure, but at the same time it is desirable to present that same view to as many as possible of the ordinary spectators. For instance, when two Gamecocks of No. 23 (Fighter) Squadron were giving their very fine exhibition of simultaneous aerobatics, they approached the aerodrome from opposite directions and crossed each other in the middle. The best view is from a position at right angles to the paths of the two machines, for then they look as if they must inevitably collide. Seen from behind one of the machines, the margin of safety is quite apparent, and the "thrill" so beloved of the evening papers is lost. The same remarks apply to the appearance of an airship. When R 101 was low down over the aerodrome, everyone wanted to have a good look at her sides. Our suggestion is that all aircraft should fly on the line south-east to north-west, and that the Royal enclosure should be placed accordingly. A few years ago the Royal enclosure was placed on the

The
R.A.F.
Display

DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list—

1930

- July 5 .. King's Cup Race and Hanworth Air Pageant.
- July 5-6 .. Gliding by Herr Kronfeld at Folkestone.
- July 9-12 .. R.A.F. Athletic Championships, Uxbridge.
- July 12-13 .. Gliding by Herr K onfeld at Scarborough.
- July 13 .. N.F.S. Flying Meeting, Leeds.
- July 17-23 .. "British Week" at Antwerp Exhibition.
- July 19 .. N.F.S. Flying Meeting, Hull.
- July 19 .. Air Pageant at Hanworth, in Aid of National Birthday Trust Fund.
- July 19 .. S.M.A.E. Model Competitions, Halton Camp.
- July 20 .. International Light Plane Tour of Europe, starting from Berlin.
- Aug. 7 ..
- July 26 .. Norwich Flying Meeting.
- July 31 .. Entries close for 1931 Schneider Trophy Contest.
- Aug. 15-31 .. Circuit of Italy.
- Aug. 17 .. Shanklin Meeting.
- Sept. 1-6 .. 5th International Air Congress at The Hague.
- Sept. 6 .. Opening of Ratcliffe Aerodrome, Leicester.
- Sept. 20 .. Liverpool Air Pageant.
- Sept. 27 .. N.F.S. Air Meeting, Hanworth.
- Nov. 28 ..
- Dec. 14 .. Paris Aero Show

1932
May 31 .. Closing date for Cellon Cross-Channel Glide £1,000 Prize.

south-west side of Hendon, and we know of no reason why it should not be placed there again, subject to His Majesty's consent.

It is hardly a suggestion to remark that at least one event last Saturday seemed to have been under-rehearsed. The authorities must have noticed that for themselves, and next year's committee will doubtless take steps to see that all events come up to the high standard which everyone has come to expect at the Royal Air Force Display. But we do think that something ought to be done to speed up the events allotted to the army co-operation squadrons. It seems a minor tragedy of the Display that the events which they stage should be allowed to rank as almost tedious. All the messages were picked up with an accuracy which was really remarkable. Such an event ought to be at least as attractive as tent-pegging by the cavalry is always found to be. The messages and the strings to which they are tied need to be made more conspicuous when they are on the ground. The artillery observation drags still more painfully. The rate of fire ought to be a great deal quicker than it was last Saturday. Again, the effect would have been better if the convoy of lorries had been moving along the length of the aerodrome, instead of across it.

We have put our constructive criticisms in the forefront of our remarks, and that may give the impression that the chief feeling which was left by the Display was one of disappointment and dissatisfaction. On the contrary, we are more inclined to marvel at the high average standard maintained from year to year. The aeroplane, like the horse, is capable of doing many things which are a joy to see, and for that reason alone any flying display is almost certain to be attractive. When the management deals, as

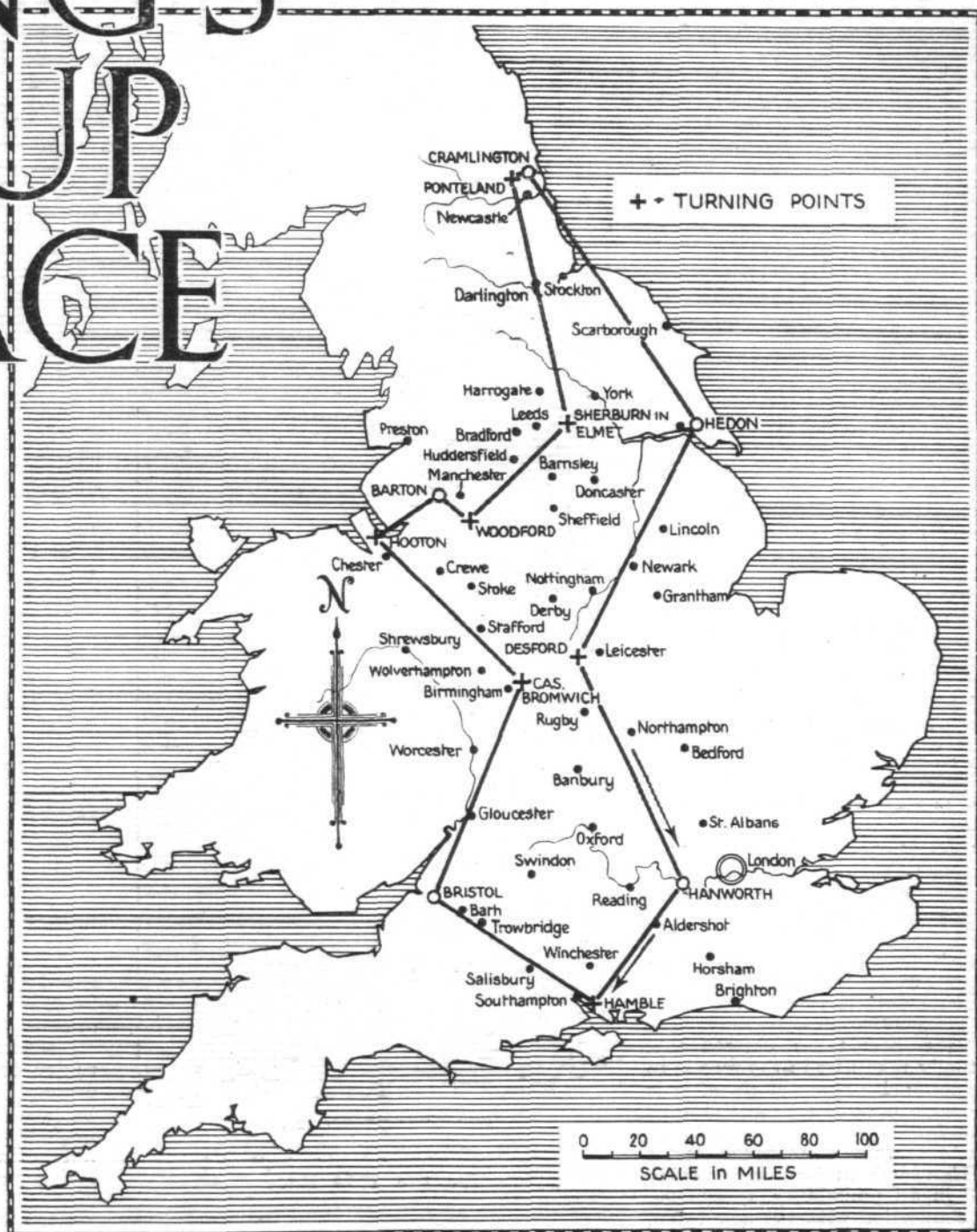
the Display Committee has to deal, with service pilots, disciplined and trained to work together, with high-performance aircraft, and with so many varieties of aircraft and of air activity, it would be strange indeed if they could not stage a show of peculiar attraction. That the average level of merit is maintained from year to year is, none the less, a phenomenon which does much credit to all concerned. But that in almost every year there are some events which go one better than anything before is more than merely creditable. It is really remarkable. It shows that new discoveries are constantly being made about a man's power over an aeroplane.

There were several items in this year's programme which struck us as reflecting especial credit, either to the aircraft and pilots concerned or to the gift for showmanship displayed by the Committee. In the first category we should place the flight evolutions by the Central Flying School, the squadron aerobatics by No. 43 (Fighter) Squadron, and the formation flying by No. 600 (City of London) (Bomber) Squadron. In the second category we should place the formation of the three experimental aircraft (an idea which showed a touch of real genius), the fly past by R 101, the evolutions with smoke, and the combined parachute drops. Some of those, perhaps, were obvious events which anyone would have selected. None the less, all those events mentioned above were good showmanship, and the smoke evolutions in particular showed a sense of art and craftsmanship which could hardly be too highly praised. On the whole, without a doubt the eleventh Display was a right good show, and as the weather was quite ideal, the amount of pleasure which it gave to many thousands of spectators must have been beyond all estimation.



A NEW AVRO TYPE : The Avro Six, an experimental machine recently produced, has accommodation for two pilots, side by side, and four passengers. The headroom is greater than in the Avro Five. (FLIGHT Photos.)

KING'S CUP RACE



[FLIGHT Sketch Map.]

THIS year's race for the King's Cup will be flown over a circuit of 750 miles, starting and finishing at London (Hanworth). The race will be flown in a clockwise direction, and the machines will make compulsory stops of 40 minutes at each of the following controls: Bristol (Whitchurch Aerodrome), Manchester (Barton Aerodrome), Newcastle (Cramlington Aerodrome), and Hull (Hedon Aerodrome). In addition, there are the following aerodrome turning points, at which machines fly over but do not land: Hamble, Castle Bromwich, Hooton Park, Woodford, Sherburn-in-Elmet, and Desford (Leicester). Controls are indicated by circles, and turning points by crosses.

The individual distances (in miles) are as follows: London-Hamble, 56.5; Hamble-Bristol, 66.5; Bristol-Castle Bromwich, 83.5; Castle Bromwich-Hooton Park, 72.25; Hooton Park-Manchester, 25.5; Manchester-Woodford, 13.75; Woodford-Sherburn, 49.5; Sherburn-Newcastle, 91.75; Newcastle-Hull, 109; Hull-Leicester, 91.75. Leicester-Hanworth, 89.5. Total 749.5 miles.

KING'S CUP AIR RACE

NEVER in the history of British aviation have we had a list of entries comparable with that for the King's Cup Air Race, which starts from Hanworth on July 5. Not only is the number of entries (101) a record, but it includes no less than 22 different types of aircraft. Yet in spite of this fact, the machines will be much more evenly matched than was the case a few years ago, when the horse-powers ranged from 30 to 500 or so, and the speeds from 70 to 160 m.p.h. No such wide gaps will be found this year, for the Royal Aero Club has ruled that no machine will be handicapped at less than 80 m.p.h., and although one machine (the Vellore III) is fitted with two "Jupiters," the machine is a very large one and not designed for very high speed. And at the other end of the scale, the machines fitted with the lowest powered engines are nearly, if not quite, as fast as the average two-seater light 'plane, being single-seaters with a very good performance. A handicap race in which the speeds of the extreme types taking part vary by a very wide margin is never very exciting, but this year almost all the competitors are fairly evenly matched, and the race will approach much closer to the equivalent of a "one-design" race.

That 22 distinct types of machine should be entered is an indication of the much greater activity in light 'plane production which 1930 is showing. New firms are coming into being and are producing new types, while the older firms are keeping well abreast of the times by bringing out new models. That all the new types entered will actually take part in the race is to be doubted. Some of them, it is known, cannot be got ready in time. But for all that, the number of machines which will face the starter at Hanworth on Saturday morning will in all probability, exceed 90. In connection with the new types, we should not fail to place on record the fact that reports have reached us from many sources of the splendid way in which Martlesham has entered into the spirit of the King's Cup Race by carrying out the tests for the C. of A. in the shortest possible time. The Martlesham pilots have been at it from dawn until dusk, and if any machine has failed to get through its C. of A. tests in time, it has certainly not been the fault of Martlesham.

Another feature of this year's race for the Cup presented by His Majesty the King, for which the aviation community has reason to be grateful, is that for the first time two Royal princes have entered machines in the race: H.R.H. the Prince of Wales has entered a Hawker "Tomtit" fitted with

Armstrong-Siddeley "Mongoose" engine, to be piloted by Sqdn.-Ldr. Don, and H.R.H. Prince George has entered a De Havilland "Hawk Moth" with Armstrong-Siddeley "Lynx" engine, to be piloted by Flight-Lieut. Fielden. The importance of the excellent lead thus given to our well-to-do sportsmen by the princes can scarcely be over-estimated.

In the following pages we give photographs of all the types of aircraft taking part in the race. In all they number 22 but actually, if one were to class as a separate type any particular machine according to the engine fitted, the number would be much greater. For example, any given type of light aeroplane may be fitted with the Cirrus II, Cirrus III, Cirrus-Hermes, Gipsy I, Gipsy II, Gipsy III, Genet II, or Genet Major. The difference in external appearance would, generally speaking, be so small that we have not, in most cases, thought it necessary to give a photograph of each, more particularly so as regards the older types of machine, which are already well known to our readers. Where new machines have been produced, and are taking part in the race fitted with different power plants, we have included pictures of them in order to give readers an idea of both versions.

Readers who have an opportunity to visit one of the aerodromes on the route at which the machines will be landing will be well advised to take particular note of the following types: the Avian monoplanes, the Desoutter Mark II, the Martlets, the Segrave Meteor, the De Havilland

Puss Moth, the Robinson Redwing, the Spartan Arrow, the Pobjoy-engined Swift, and the largest machine in the race, the Vickers Vellore III. For the benefit of those who intend to visit the starting and finishing point at Hanworth, it may be pointed out that the first machine will be sent off at 7 a.m., the others following in the order of their handicaps. The machines should be back again at approximately 6.30-7 p.m.



The Cup presented by
HIS MAJESTY THE KING
for the 1930 Race

Number of Aircraft Types in King's Cup Race

Aircraft	Number Entered.
De Havilland "Moth"	39
Blackburn "Bluebird"	14
De Havilland "Puss Moth"	9
Avro "Avian" biplane	8
Simmonds "Spartan"	4
Spartan "Arrow"	3
Desoutter Monoplane	3
Westland "Widgeon"	3
Avro "Avian" Monoplane	2
Comper "Swift"	2
Hawker "Tomtit"	2

Aircraft	Number Entered.
Southern "Martlet"	2
A.B.C. "Robin"	1
Arrow "Active"	1
Avro Five	1
Avro "Trainer"	1
De Havilland "Hawk Moth"	1
Hendy "302"	1
Parnall "Elf"	1
Robinson "Redwing"	1
Segrave "Meteor"	1
Vickers "Vellore III"	1

Total number of types, 22; total number of machines, 101.

AVIAN BIPLANE

A TWO-SEATER, light plane, variously fitted with Cirrus II, Cirrus III, Cirrus-Hermes, and Siddeley Genet engines. A sports version is also marketed. Racing numbers carried by "Avians" in the race: 5, 41, 55, 59, 82, 83, 85, 91.

(FLIGHT Photo.)



Constructors:

A. V. Roe & Co., Ltd.,
Manchester.

AVIAN MONOPLANE

THIS is an entirely new type, which will make its first public appearance in the King's Cup Race. The very beautiful lines of the machine should be noted. The "Avian Monoplane" is produced in two versions, one with Armstrong-Siddeley "Genet Major" engine and one with Cirrus-Hermes. This photograph shows the "Genet-Major" type. Racing number in the Race: 84.



Constructors:

A. V. Roe & Co., Ltd.,
Manchester.

AVIAN MONOPLANE

THIS is the Cirrus-Hermes engined version, its racing number being No. 69.

(FLIGHT Photo.)

8865



Constructors:

A. V. Roe & Co., Ltd.,
Manchester.

AVRO FIVE



A SMALL commercial monoplane of the "Feeder Line" type, fitted with three "Genet Major" engines. Carries pilot and four passengers. Racing number: 71.

(FLIGHT Photo.)

Constructors:

A. V. Roe & Co., Ltd.,
Manchester.

AVRO TRAINER



A TWO-SEATER machine of all-metal construction, designed for school work. The "Mongoose" engine is fitted as standard, but the machine is also supplied fitted with a "Lynx". Racing number: 70.

(FLIGHT Photo.)

Constructors:

A. V. Roe & Co., Ltd.,
Manchester.

BLUEBIRD



THE main feature of this two-seater light 'plane is the side-by-side seating arrangement, which enables the occupants to converse during flight without using telephones. The machine is of all-metal construction, and fitted with the Gipsy I, Gipsy II, Cirrus III and Cirrus-Hermes engines. Racing numbers: 21, 22, 27, 28, 29, 30, 31, 32, 47, 64, 89, 90, 93, 96.

(FLIGHT Photo.)

Constructors:

Saunders-Roe, Ltd.,
Cowes.

Designers:

The Blackburn Co.

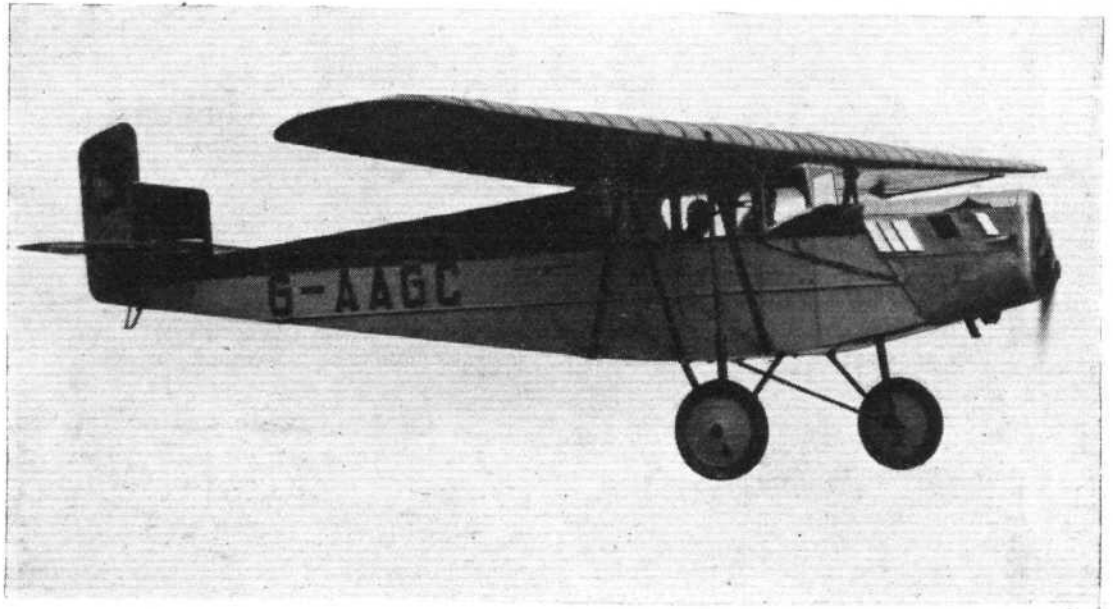
DESOUTTER I

A THREE - SEATER monoplane of wood construction. All three occupants housed in the cabin, the pilot in front and the two passengers behind. Very popular machine for air taxi work. Cirrus-Hermes engine. Racing numbers: 42, 61.

(FLIGHT Photo.)

Constructor:

Desoutter Aircraft
Co., Ltd.,
Croydon.



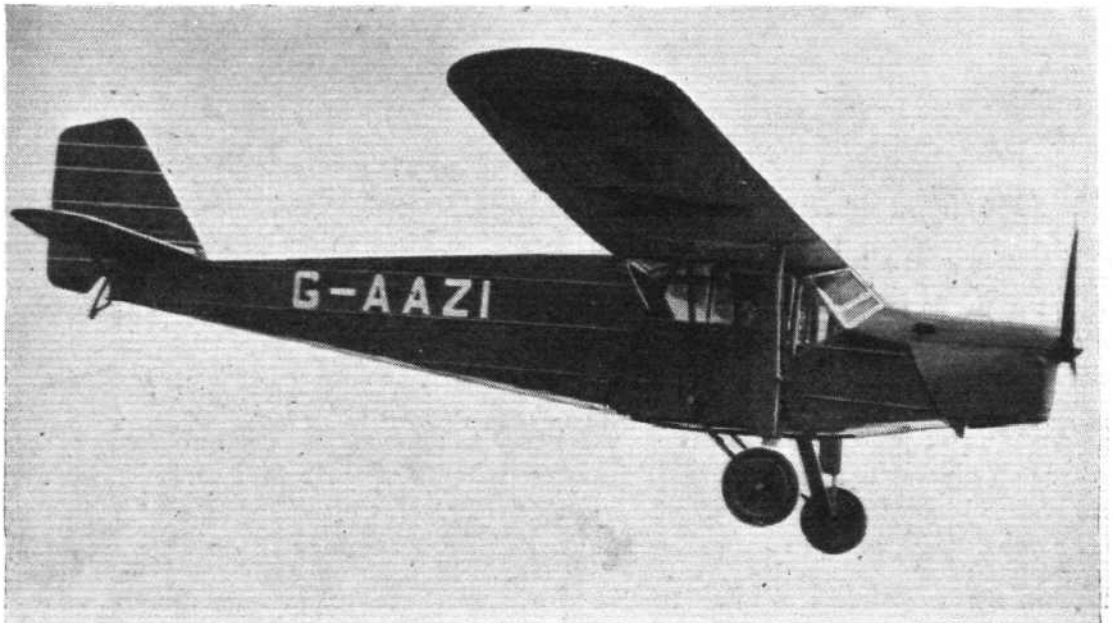
DESOUTTER II

THIS is a recent development of the Mark I machine, and among the changes may be noted the fitting of an inverted engine (Gipsy III), which has improved the view. Racing number: 68.

(FLIGHT Photo.)

Constructor:

Desoutter Aircraft
Co., Ltd.,
Croydon.



ELF

A TWO-SEATER light plane of mixed construction, fitted with Cirrus-Hermes engine. The wing bracing is a "Warren Girder," and the wings are staggered to give a better view and to enable both occupants to make use of their parachutes in emergency. Racing number: 97.

(FLIGHT Photo.)

Constructor:

George Parnall & Co.,
Bristol.



HAWK MOTH



A HIGH-WING braced monoplane of mixed construction. Suitable for "Feeder Line" and air taxi work, or for the private owner. Seats pilot and 4-5 passengers. The engine is a "Lynx." Entered by Prince George. Racing number: 74.

(FLIGHT Photo.)

Constructors :

The De Havilland
Aircraft Co., Ltd.,
Stag Lane.

MARTLET



A SINGLE - SEATER light 'plane with very fine performance. Of mixed construction. Engines fitted: A.B.C. "Hornet," Armstrong-Siddeley "Genet" and "Gipsy II." Racing numbers: 65, 98.

(FLIGHT Photo.)

Constructors :

Southern Aircraft, Ltd.,
Shoreham.

METEOR



DESIGNED by the late Sir Henry Segrave, and built by Saunders-Roe, this machine, of all-wood construction, is a twin-engine monoplane with high performance. First appearance in public. The engines are inverted "Gipsy III," faired into the wing. [Racing number: 10.

Constructors:

Saunders-Roe, Ltd.,
Cowes.

MOTH

TWO-SEATER light plane, variously built in wood or metal, and fitted with the several variants of the Cirrus, Gipsy and Genet engines. No less than 39 machines of this type entered. Racing numbers: 1, 2, 3, 6, 7, 8, 12, 13, 15, 16, 23, 34, 35, 38, 39, 44, 46, 49, 51, 52, 53, 54, 56, 58, 60, 66, 72, 73, 75, 76, 78, 81, 87, 88, 92, 94, 99, 100, 101.

(FLIGHT Photo.)



Constructors:

The De Havilland
Aircraft Co., Ltd.,
Stag Lane.

PUSS MOTH

A HIGH-WING strut-braced monoplane with steel-tube fuselage and wooden wings. Normally, the machine is a cabin two-seater, but a third seat can be fitted. The engine is an inverted "Gipsy III." The undercarriage struts also serve as air brakes. Racing numbers: 9, 11, 20, 26, 45, 77, 79, 80, 86.

(FLIGHT Photo.)



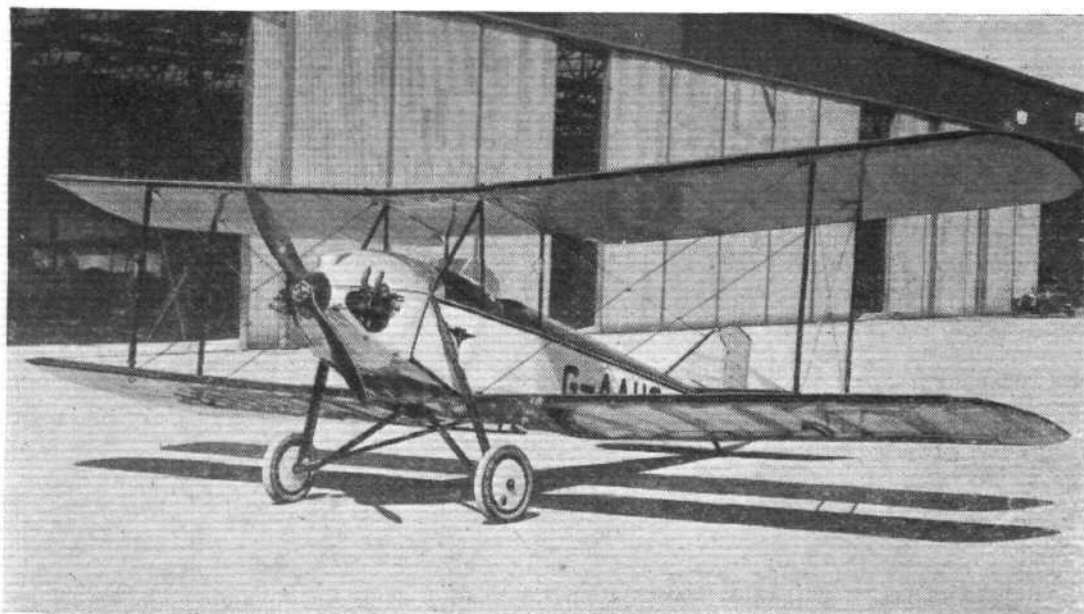
Constructors:

The De Havilland
Aircraft Co., Ltd.,
Stag Lane.

REDWING

A TWO-SEATER, side-by-side biplane of recent production and of wood construction. Designed for very low landing speed and ease of handling by pilots of only medium skill. The engine is an A.B.C. "Hornet." Racing number: 50.

(FLIGHT Photo.)



Constructors:

Robinson Aircraft
Co., Ltd., Croydon.

ROBIN



A TINY cabin mono-plane single-seater, with an A.B.C. "Scorpion" engine of 38 h.p. only. Constructed almost entirely of wood. Racing number : 95.

(FLIGHT Photo.)

Constructors :

A.B.C. Motors, Ltd.,
Walton-on-Thames.

SPARTAN



THIS light 'plane is designed for complete interchangeability of its parts, to reduce the number of spares. Produced both as a two-seater and as a three-seater, and fitted with the Cirrus, Hermes, or Gipsy engine. Racing numbers : 17, 24, 25, 40.

(FLIGHT Photo.)

Constructors :

Spartan Aircraft, Ltd.,
Southampton.

SPARTAN ARROW



THE most recent version of the Spartan, the "Spartan Arrow" differs in that it has a Clark Y wing section, which reduces some of the interchangeability features slightly, but from which the machine may benefit otherwise. The "Arrow" is to be regarded as the sports type of Spartan. Fitted with Gipsy and Hermes engines. Racing numbers : 14, 19, 48.

(FLIGHT Photo.)

Constructors :

Spartan Aircraft Ltd.,
Southampton.

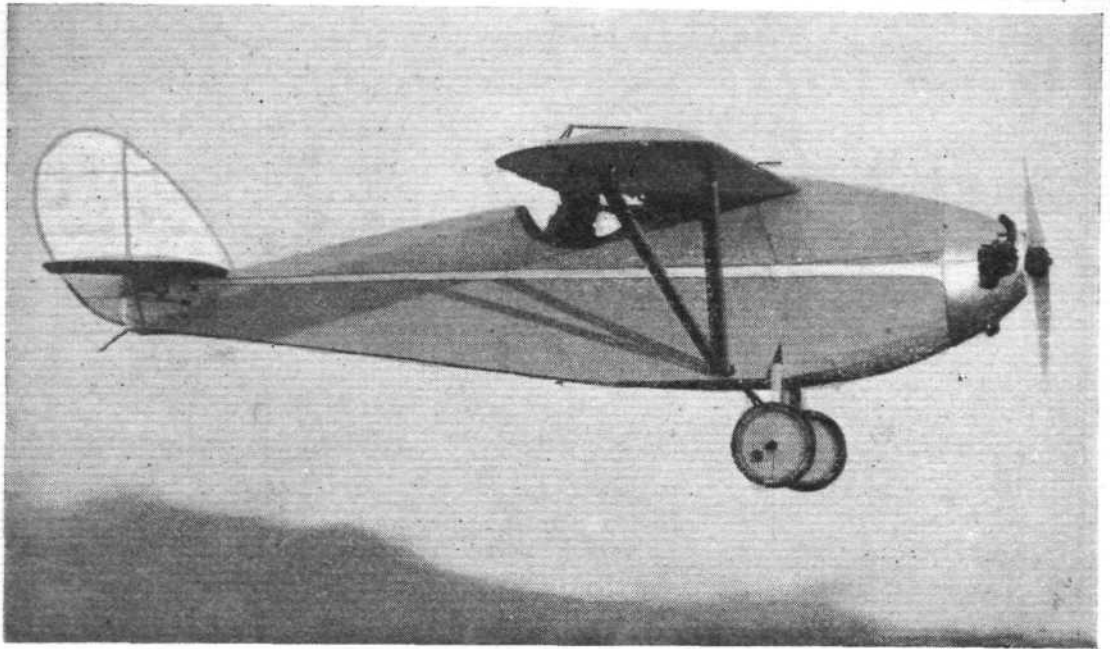
SWIFT

WITH the "Swift," Mr. Comper has proved that high performance can be obtained with low horsepower. Although the engine is an A.B.C. "Scorpion" of 38 h.p. only, the machine has a top speed of more than 100 m.p.h., and cruises at 85 m.p.h. on a very low fuel consumption. Racing number: 36.

(FLIGHT Photo.)

Constructors:

Comper Aircraft Co.,
Ltd.,
Hooton, Cheshire.



SWIFT

SIMILAR to the standard "Swift," except for the engine, which is a Pobjoy radial, geared. With this engine the "Swift" has a performance resembling that of a single-seater fighter, the climb being more than 1,000 ft./min. First public appearance. Racing number: 4.

(FLIGHT Photo.)

Constructors:

Comper Aircraft Co.,
Ltd.,
Hooton, Cheshire.



TOMTIT

AN all-metal training machine (two seater) with Armstrong-Siddeley "Mongoose" engine. In the King's Cup Race, one of these machines (No. 33) has been entered by the Prince of Wales. Racing numbers: 33, 57.

(FLIGHT Photo.)

Constructors:

H. G. Hawker Engineering Co., Ltd.,
Kingston-on-Thames.



VELLORE III



AN all-metal biplane of large size and carrying capacity, fitted with two Bristol "Jupiter" engines. The most powerful machine in King's Cup Race. First public appearance. Racing number: 43.

(FLIGHT Photo.)

Constructors :

Vickers (Aviation),
Ltd.

WIDGEON



A PARASOL monoplane two-seater light plane variously fitted with Hermes, Gipsy and Genet engine. Racing numbers: 18, 37, 67.

(FLIGHT Photo.)

Constructors :

Westland Aircraft
Works,
Yeovil.

HENDY 302



DESIGNED by Mr. Basil B. Henderson, this new machine has been but recently produced, and is something of a "dark horse." Last year Mr. Henderson produced the "Hobo," incorporating a novel form of wing construction, and the "302" is a development of the smaller machine, being a cabin two-seater. As the picture shows, it is a low-wing monoplane. The occupants are placed in tandem. The engine is a Cirrus - Hermes. Racing number : 63.

(FLIGHT Photo.)

Constructors :

George Parnall & Co.,
Bristol.

COMPETITORS IN THE KING'S CUP AIR RACE, JULY 5, 1930

No. and Ident. Mark	Entrant	Pilot	Machine	Engine
1 (G-AARU)	F. S. Symondson	F. S. Symondson	D.H. Moth	Gipsy.
2 (G-EBYV)	I. R. Parker	I. R. Parker	D.H. Moth	Cirrus II.
3 (G-EBYZ)	A. G. G. Marshall	A. G. G. Marshall	D.H. Moth	Gipsy I.
4 (G-AAZF)	Gerard Fane	Gerard Fane	Comper Swift	Pobjoy, Type "P."
5 (G-EBWU)	Lieut. Caspar John, R.N.	Lieut. Caspar John, R.N.	Avro Avian	Cirrus II.
6 (G-AAWU)	Arthur Stanley Preist	Arthur Stanley Preist	D.H. Moth	Gipsy I.
7 (G-AAEW)	Derek Schreiber	Derek Schreiber	D.H. Moth	Gipsy I.
8 (G-EBQW)	James Brian Buckley	James Brian Buckley	D.H. Moth	Cirrus III.
9 (G-AAWV)	Roy Faulkner	Capt. C. D. Barnard	D.H. Puss Moth	Gipsy III.
10 (G-AAXP)	Andrew P. Holt	Flt.-Lieut. R. L. R. Atcherley	Segrave-Meteor	Gipsy III (2).
11 (G-AAYD)	W. L. Hope	W. L. Hope	D.H. Puss Moth	Gipsy III.
12 (G-AAGA)	Lieut.-Col. A. Hamilton Gault	Lieut.-Col. A. Hamilton Gault	D.H. Moth	Gipsy I.
13 (G-AABO)	T. H. Naylor	T. H. Naylor	D.H. Moth	Gipsy I.
14 (G-AAWZ)	W. A. Andrews	W. A. Andrews	"Spartan Arrow"	Gipsy I.
15 (G-EBVD)	A. G. Vlasto	George Vlasto	D.H. Moth	Cirrus I.
16 (G-EBOT)	D. M. K. Marendaz	W. H. Sutcliffe	D.H. Moth	Cirrus I.
17 (G-AAGN)	John C. Ballardie	Lieut.-Col. L. A. Strange	Spartan	Cirrus III
18 (G-AADE)	C. S. Napier	C. S. Napier	Westland Widgeon	Gipsy I.
19 (G-ABBE)	Capt. H. H. Balfour, M.C., M.P.	Capt. H. H. Balfour	"Spartan Arrow"	Gipsy II.
20 (G-AAFA)	M. H. Findlay	M. H. Findlay	D.H. Puss Moth	Gipsy III.
21 (G-AACC)	Capt. Norman Blackburn	T. Rose	Blackburn Bluebird IV	Cirrus Hermes.
22 (G-AABV)	Capt. Norman Blackburn	Capt. Norman Blackburn	Blackburn Bluebird IV	Gipsy
23 (G-AAEE)	Hon. Lady M. Bailey, D.B.E.	Hon. Lady M. Bailey	D.H. Moth	Gipsy I.
24 (G-AAGO)	A. E. Chambers	H. T. Andrews	Spartan	Gipsy II.
25 (G-ABAJ)	Sqdn.-Ldr. H. W. Woollett	F./O. H. R. L. Hood	Spartan 3-seater	Cirrus Hermes
26 (G-ABBH)	Lord Wakefield of Hythe	Captain H. S. Broad	D.H. Puss Moth	Gipsy III.
27 (G-AATO)	Norman E. Holden	Flt.-Lieut. G. G. H. Du Boulay	Blackburn Bluebird Mark IV	Gipsy I.
28 (G-AAVG)	Marshal of the Royal Air Force, Lord Hugh Trenchard, G.C.B., D.S.O., D.C.L., LL.D.	Sqdn.-Ldr. L. H. Slatter	Blackburn Bluebird Mark IV	Cirrus Hermes
29 (G-AAIR)	Col. The Master of Sempill, A.F.C.	Col. The Master of Sempill	Blackburn Bluebird Mark IV	Gipsy I.
30 (G-AAOI)	Rt. Hon. Sir Philip Sassoon, Bart., P.C., G.B.E., C.M.G., M.P.	John W. Gillan	Blackburn Bluebird Mark IV	Cirrus Hermes.
31 (G-AAUV)	Loel Guinness	Loel Guinness	Blackburn Bluebird Mark IV	Gipsy I.
32 (G-AATN)	Robert McAlpine	Flt.-Lieut. H. R. D. Waghorn	Blackburn Bluebird Mark IV	Gipsy I.
33 (G-AALL)	H.R.H. The Prince of Wales, K.G.	Sqdn.-Ldr. D. S. Don	Hawker Tomtit	Mongoose IIIA.
34 (G-ABAM)	Richard R. W. R. Trafford	Richard R. W. R. Trafford	D.H. Moth	Gipsy I.
35 (G-EBWT)	W. L. Runciman	W. L. Runciman	D.H. Moth	Cirrus III.
36 (G-AARX)	Flt.-Lieut. N. Comper	L. S. Snaith	Comper Swift	Scorpion II.
37 (G-EBRQ)	J. Wellworth	J. Wellworth	Westland Widgeon III	Genet III.
38 (G-EBQH)	F. A. I. Muntz	F. A. I. Muntz	D.H. Moth	Gipsy I.
39 (G-AAEF)	A. B. Ferguson	A. B. Ferguson	D.H. Moth	Gipsy I.
40 (G-AAAG)	Flt.-Lieut. F. G. Gibbons	Flt.-Lieut. F. G. Gibbons	Spartan	Cirrus Hermes.
41 (G-AAEJ)	Capt. F. W. Ewart Morgan	S. A. Thorn	Avro Avian Mark IVm	Cirrus Hermes.
42 (G-AATK)	A. M. Desoutter	A. B. H. Youell	Desoutter I	Cirrus Hermes.
43 (G-AASW)	Sir Robert McLean	F./O. J. Summers	Vickers Vellore	Bristol Jupiter XI (2).
44 (G-AAHP)	W. L. Hope	R. O. I. Muntz	D.H. Moth	Gipsy II.
45 (G-AAXT)	Norman E. Holden	E. G. Hordern	D.H. Puss Moth	Gipsy III.
46 (G-AAYY)	J. W. P. Chalmers	J. W. P. Chalmers	D.H. Moth	Gipsy II.
47 (G-AAUW)	Mrs. Robert Blackburn	Flt.-Lieut. H. V. Rowley	Blackburn Bluebird IV	Gipsy I.
48 (G-AAWY)	Flt.-Lieut. J. R. Addams	Flt.-Lieut. J. R. Addams	"Spartan Arrow"	Cirrus Hermes.
49 (G-ABAE)	Mrs. C. M. Young	Mrs. C. M. Young	D.H. Moth	Gipsy I.
50 (G-AAUO)	Capt. P. G. Robinson	Flt.-Lieut. J. F. T. Barrett	Robinson "Redwing"	A.B.C. Hornet.
51 (G-AAWR)	C. M. Pickthorn	C. M. Pickthorn	D.H. Moth	Gipsy I.
52 (G-AAKI)	Richard Ince	Richard Ince	D.H. Moth	Gipsy I.
53 (G-ABBA)	Lord Wavertree	Flt.-Lieut. S. B. Allen	D.H. Moth	Gipsy I.
54 (G-EBOI)	P. A. Wills	P. A. Wills	D.H. Moth	Cirrus II.
55 (G-EBVZ)	Miss Winifred S. Brown	Miss Winifred S. Brown	Avro Avian	Cirrus III.
56 (G-AALK)	Capt. The Hon. F. E. Guest	Capt. The Hon. F. E. Guest	D.H. Moth	Gipsy I.
57 (G-ABAX)	Capt. The Hon. F. E. Guest	Capt. The Hon. F. E. Guest	Hawker Tomtit	Mongoose IIIA.
58 (G-AADA)	John D. Irving	John D. Irving	D.H. Moth	Gipsy I.
59 (G-EBQN)	P. N. G. Peters	Flt.-Lieut. T. B. Bruce	Avro Avian	Cirrus III.
60 (G-AAEL)	Flt./Lieut. D. V. Carnegie	Flt./Lieut. D. V. Carnegie	D.H. Moth	Gipsy I.
61 (G-AAPY)	Charles Bernard Wilson	P. E. G. Sayer	Desoutter I	Cirrus Hermes.
62	A. C. Thornton	Flt./Lieut. J. S. Chick	Arrow "Active"	Cirrus Hermes.
63 (G-AAVT)	Mrs. D. Lawley-Gibbs	Capt. Edgar W. Percival	Hendy 302	Cirrus Hermes.
64 (G-AATS)	Harold John Andrews	Harold John Andrews	Blackburn Bluebird IV	Gipsy I.
65 (G-AAYZ)	Capt. The Hon. F. E. Guest	Miss Winifred Spooner	Martlet	Gipsy II.
66 (G-EBPQ)	Lieut. L. G. Richardson, R.N.	Lieut. L. G. Richardson, R.N.	D.H. Moth	Cirrus III.
67 (G-EBRM)	R. G. Cazalet	R. G. Cazalet	Westland Widgeon III	Cirrus Hermes.
68 (G-AAZI)	Rt. Hon. Lord Rothermere	C. B. Wilson	Desoutter II	Gipsy III.
69 (G-AAYW)	Frank Hough	T. N. Stack	Avro Avian Monoplane	Cirrus Hermes.
70 (G-AAKT)	Roy Chadwick	J. L. N. Bennett Baggs	Avro Trainer	Mongoose IIIA.
71 (G-AASO)	Rt. Hon. Sir Philip Sassoon, Bt., P.C., G.B.E., C.M.G., M.P.	Flt./Lieut. S. L. G. Pope	Avro V	Genet Major I (3).
72 (G-EBZZ)	Capt. R. S. Rattray	Capt. R. S. Rattray	D.H. Moth	Cirrus II.
73 (G-AAYG)	Sq./Ldr. H. A. Whistler	Sq./Ldr. H. A. Whistler	D.H. Moth	Gipsy II.
74 (G-AAUZ)	H.R.H. The Prince George, K.G.	Flt./Lieut. E. H. Fielden	D.H. Hawk Moth	Armstrong Siddeley Lynx VI.
75 (G-AASL)	G. de Havilland, Jr.	G. de Havilland, Jr.	D.H. Moth	Gipsy II.
76 (G-AAXG)	Mrs. A. S. Butler	Mrs. A. S. Butler	D.H. Moth	Gipsy II.
77 (G-AAXL)	A. S. Butler	A. S. Butler	D.H. Puss Moth	Gipsy III.
78 (G-ABAI)	Capt. R. Douglas	Capt. R. Douglas	D.H. Moth	Gipsy I.
79 (G-AAOX)	Capt. G. de Havilland	Capt. G. de Havilland	D.H. Puss Moth	Gipsy III.
80 (G-AAXZ)	Lieut.-Comm. Glen Kidston, R.N.	Lieut.-Comm. Glen Kidston, R.N.	D.H. Puss Moth	Gipsy III.
81 (G-AALJ)	Albert A. Nathan	Albert A. Nathan	D.H. Moth	Gipsy I.
82 (G-AACV)	Geoffrey Goodwin	Geoffrey Goodwin	Avro Avian	Hermes I.
83 (G-AABS)	R. H. Dobson	D. S. Green	Avro Avian	Genet Major I.
84 (G-AAYV)	J. D. Siddeley	F. Tomkins	Avro Avian Monoplane	Genet Major I.
85 (G-AAYU)	A. J. A. W. Barr	J. C. Cantrill	Avro Avian	Cirrus Hermes.
86 (G-AAZP)	Miss D. C. Guest	Miss D. C. Guest	D.H. Puss Moth	Gipsy III.
87 (G-AAJS)	Capt. I. C. Maxwell	Capt. I. C. Maxwell	D.H. Moth	Gipsy I.
88 (G-AAJO)	G. P. Fairbairn	G. P. Fairbairn	D.H. Moth	Gipsy I.
89 (G-AAUO)	Harold Peake	Sq./Ldr. A. H. Orlebar	Blackburn Bluebird IV	Gipsy I.
90 (G-AASV)	Eric Gandar-Dower	Flt./Lieut. F. J. Fogarty	Blackburn Bluebird IV	Gipsy I.
91 (G-AAWI)	Lady Wakefield	Flt./Lieut. John Oliver	Avro Avian	Cirrus Hermes.
92 (G-AADX)	A. C. M. Jackman	A. C. M. Jackman	D.H. Moth	Gipsy I.
93 (G-AAVF)	Wm. E. Rootes	Sq./Ldr. J. W. Woodhouse	Blackburn Bluebird IV	Gipsy II.
94 (G-AAHI)	H. N. S. Norman	H. N. S. Norman	D.H. Moth	Gipsy I.
95 (G-AAID)	H. A. G. Howard	A. G. Mortimer	"Robin"	A.B.C. Scorpion II.
96 (G-AAOB)	Lord M. A. Douglas Hamilton	Lord M. A. Douglas Hamilton	Blackburn Bluebird IV	Cirrus III.
97 (G-AAFH)	Geo. G. Parnall	H. A. Oresto	Parnall Elf	Cirrus Hermes.
98 (G-AAVD)	Walter R. Westhead	W. R. Westhead	Martlet	Genet.
99 (G-AAGI)	Miss F. M. Wood	Miss F. M. Wood	D.H. Moth	Gipsy I.
100 (G-EBXG)	M. D. L. Scott	M. D. L. Scott	D.H. Moth	Cirrus II.
101 (G-AASG)	O. F. MacLaren	Capt. G. A. Pennington	D.H. Moth	Gipsy I.

KING'S CUP RACE

Racing Number	Handicap h. m. s.	Starting Time h. m. s.	Racing Number	Handicap h. m. s.	Starting Time h. m. s.	Racing Number	Handicap h. m. s.	Starting Time h. m. s.
16	3 41 17	7 00 00	81	1 54 18	8 46 59	67	1 23 48	9 17 29
15	3 21 49	7 19 28	101	1 54 18	8 46 59	73	1 21 55	9 19 22
50	3 06 38	7 34 39	35	1 52 07	8 49 10	46	1 21 55	9 19 22
95	3 03 42	7 37 35	56	1 51 03	8 50 14	70	1 20 59	9 20 18
5	2 46 46	7 54 31	40	1 51 03	8 50 14	75	1 17 17	9 24 00
54	2 44 03	7 57 14	6	1 49 58	8 50 49*	4	1 17 17	9 24 00
96	2 41 22	7 59 55	7	1 49 58	8 51 19	24	1 08 19	9 32 58
36	2 28 22	8 12 55	12	1 49 58	8 51 19	58	1 06 34	9 34 43
22	2 27 07	8 13 40*	93	1 48 54	8 51 53*	38	0 59 44	9 41 33
64	2 27 07	8 13 40*	59	1 48 54	8 51 53*	68	0 53 08	9 48 09
90	2 27 07	8 14 10	83	1 48 54	8 52 23	85	0 51 31	9 49 46
100	2 27 07	8 14 10	97	1 48 54	8 52 23	91	0 48 19	9 52 58
27	2 25 51	8 14 56*	13	1 46 47	8 54 30	76	0 46 45	9 54 32
29	2 25 51	8 14 56*	48	1 46 47	8 54 30	*41	0 46 45	9 54 32
31	2 25 51	8 15 26	88	1 45 44	8 55 33	63	0 43 38	9 57 39
32	2 25 51	8 15 26	3	1 44 41	8 56 36	74	0 40 34	10 00 13*
47	2 25 51	8 15 56†	94	1 43 39	8 57 38	33	0 40 34	10 00 43
89	2 25 51	8 15 56†	51	1 43 39	8 57 38	57	0 40 34	10 00 43
55	2 25 51	8 16 26‡	37	1 42 36	8 58 41	44	0 37 33	10 03 14*
2	2 23 22	8 17 55	18	1 40 33	9 00 44	9	0 37 33	10 03 44
8	2 23 22	8 17 55	78	1 38 30	9 02 47	11	0 37 33	10 03 44
17	2 16 03	8 25 14	87	1 38 30	9 02 47	65	0 36 04	10 05 13
28	2 06 38	8 34 39	92	1 37 30	9 03 47	20	0 34 36	10 06 11*
30	2 06 38	8 34 39	53	1 36 29	9 04 48	45	0 34 36	10 06 11*
72	2 05 29	8 35 48	82	1 36 29	9 04 48	80	0 34 36	10 06 41
25	2 04 20	8 36 57	21	1 35 29	9 05 48	86	0 34 36	10 06 41
34	1 59 49	8 41 28	99	1 33 29	9 07 48	26	0 33 52	10 06 55*
39	1 58 42	8 42 35	98	1 32 30	9 08 47	77	0 33 52	10 07 25
49	1 58 42	8 42 35	61	1 30 32	9 10 45	79	0 33 52	10 07 25
66	1 57 36	8 43 11*	19	1 30 32	9 10 45	84	0 31 41	10 09 36
52	1 57 36	8 43 41	23	1 28 35	9 12 12*	69	0 20 28	10 20 49
60	1 57 36	8 43 41	42	1 28 35	9 12 42	10	0 04 54	10 36 23
14	1 55 23	8 45 54	71	1 28 35	9 12 42	43	Scratch	10 41 17
1	1 54 18	8 46 29*						

* Starting 30 seconds early.

† Starting 30 seconds late.

‡ Starting 1 minute late.

The necessary adjustments will be made in fixing the starting time from Hull.

PRIZES

THE main award in the race is, of course, the very handsome cup presented by His Majesty the King. Additional prizes have, however, been offered as follows:—

In King's Cup Race

By Lord Wakefield of Hythe:—1st, £200; 2nd, £100; 3rd, £50.

For fastest time around the course: By Lord Wakefield of Hythe: £100. By *Bristol Evening Times*: a cup.

In the handicap race on formula, Lord Wakefield has offered a prize of £50 to the winner.

Open to light aeroplanes weighing not more than 1,200 lb. empty are the following prizes for best handicap time between

London and Newcastle: 1st, *Evening World Challenge Trophy* and £20; 2nd, £30; 3rd, £10.

Open to all competitors, and offered for best handicap time between London and Hull, a prize of 25 guineas offered by Hull Oil Manufacturing Co., Ltd., and a prize of similar value, but open to private owners only, piloting their own machines, by Premier Oil Extracting Mills, Ltd.

Siddeley Challenge Trophy

This trophy, offered by Mr. J. D. Siddeley, and a cash prize of £50 offered by Mr. M. H. Volk, is open to aircraft owned by a club or by a member of a club. The pilot must be a member of a club. In the case of privately-owned machines the owner must be the pilot.

Arrangements at Hanworth

IN view of the large number of entries, and of the many famous pilots, some on quite new types of machines, taking part in the race, it is expected that public interest this year will be greater than ever. National Flying Services, Ltd., are making arrangements to provide accommodation for 40,000 visitors and 5,000 motor cars. Throughout the day, the progress of the race will be broadcast to all enclosures by means of loudspeakers, and there will be a wireless station erected at Hanworth so as to be in constant communication with the controls at Bristol, Manchester, Newcastle, and Hull.

During the day flying displays will be given at Hanworth, so that visitors should find plenty to keep them interested while the King's Cup machines are away.

Special transport arrangements are being made, and there should be no difficulty in getting the crowds to Hanworth. Half-fare return tickets to Feltham will be available on the Southern Railway from Waterloo, Kingston, Wimbledon and many other Southern suburban stations. Feltham station is but 10 minutes' walk from Hanworth Air Park.

The District Railway links at Hounslow West with 'bus services 117 D and 120 to Feltham. London General 'bus

service 117 D is available from Hounslow, Staines, Windsor and Slough. Service 120 from Hayes, Southall, and Hounslow, and services 90 and 90 A from Richmond, Twickenham, Sunbury, Shepperton and Chertsey.

The special arrangements which have been made for entertaining the thousands which it is hoped will await the return of the competing machines during the afternoon hold hopes of considerable interest.

Among other features, arrangements have been made for M. Rene Fonck to give a demonstration, then there will be a display of banner flying under a French system, while many other well-known pilots, including Flt. Lts. Schofield and Armour, will give aerobatic displays, and finally, Mr. John Tranum will make a parachute jump.

Parachutes in the Race

This year, a very large number of competing pilots will be wearing parachutes. In view of the large number of entries, this is no unnecessary precaution, as in case of fog or bad visibility there is always some risk of collision. The Irving Air Chute Company has made arrangements for their experts to be in attendance at Hanworth on Friday, July 4, the day before the race, to render assistance and give advice to all pilots who are wearing the Irving parachute in the race.

THE ELEVENTH ROYAL AIR FORCE DISPLAY

ENJOYMENT was the keynote of Saturday, June 28, at Hendon, when the eleventh annual Display of the Royal Air Force was duly and truly held. Every single ingredient which goes to make a pleasant afternoon was there. The weather forecasts and the barometer had not been too optimistic, but Flaming June, after none too glorious a record, decided to be worthy for once of her reputation. Not that she flamed too dazzlingly; there were just enough white clouds in the sky to temper the glare. Of rain there was no fear at all. The King of Australia went to Lords to see his batsmen tonk the bowlers of the King of England. The Queen went to Wimbledon. A good few thousands of the public followed both these good examples, but that did not seem to make much difference to the size of the crowd at Hendon. Prince George came to Hendon in the afternoon, and with him in the Royal enclosure were the ex-King of Greece, the brother of the Emperor of Japan and Princess Takamatsu, the Siamese princes, and the Sultan of Johore (F.M.S.). The crowd seemed as great as ever, or greater. It is not easy to estimate an odd 10,000 or so just by looking at a crowd; but it was noticeable that very large numbers arrived at the aerodrome in the morning, and the events which started at noon had a larger audience than they probably ever had before. These early arrivals were wise. Not only did they secure a good pitch, but they saw events which were certainly too good to miss.

Five hours is a long time to spend in spectating, and 23 events makes a tremendous programme. When we say that the average merit of this year's Display was up to the average of previous years, we are giving very high praise. But we might select five of the items as deserving of special praise, and two more which undoubtedly gave very great pleasure to the crowd. We shall also have a word or two of criticism to make in the proper place. The five items to which we give full marks were: (1) the formation flying by an Auxiliary Air Force squadron, (2) the demonstration by three experimental aircraft (we cannot say by three aeroplanes), (3) the Moths of the Central Flying School, (4) the artistic work of the three Grebes with coloured smoke, and (5) the magnificent squadron aerobatics by No. 43 (Fighter) Squadron. As in previous years, the programme was divided into two sections, the events of the morning (so called, although the first event started at noon) being identified by letters from A to H, and those of the afternoon by numbers, 1 to 15.

Headquarters' Race

Event A was a race for officers representing the Air Ministry and each Headquarters of Commands in England. The race was over a distance of 28 miles, and was a handicap. The Air Ministry was represented by Wing-Comdr. Maltby, who was flying a Gloster "Gamecock" with "Jupiter" engine; A.D.G.B. by Sqdn.-Ldr. Bowen, on a Jupiter-Grebe; Coastal Area by Flight-Lieut. Barlow, on a Jaguar-Flycatcher; Fighting Area by Flight-Lieut. Stanforth, on a Jupiter-Grebe; Inland Area by Wing-Comdr. Herring, on a Jaguar-Siskin; Wessex Bombing Area by Flight-Lieut. Bonham-Carter, on a



Rolls-Royce Bristol Fighter; Cranwell by Sqdn.-Ldr. Scott, on a Jaguar-Siskin; and Halton by Flight-Lieut. Adams, on a Jaguar-Siskin. The "Brisfit" was limit man, and the Gamecock scratch. The race resulted in a win for Halton (also winner last year), with Inland Area second and Air Ministry third. The speed of the winner was 130 m.p.h.

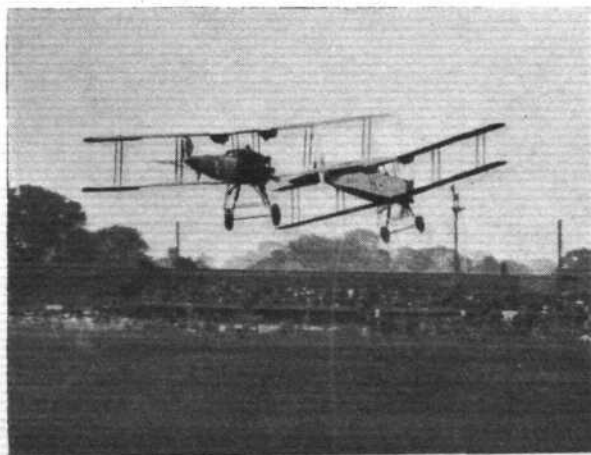
Picking Up Messages

Event B.—This was a demonstration, by No. 2 (Army Co-operation) Squadron, of picking up and dropping messages as a means of intercommunication between aircraft and troops on the ground. The message is placed in a bag attached to a loop of cord suspended from two rifles stuck into the ground. Normally messages are picked up in this way by single aircraft, but for the purpose of the Display, No. 2 carried out the evolution with six machines simultaneously, flying in two flights of three. The casual onlooker may not have been impressed, but for skill in handling their machines No. 2 Squadron is certainly to be commended. Not only do the pilots have to keep their formation, but they also have

to come within a few feet of the ground in order to get the messages within range of the grapnel hooks. On Saturday they kept their formation remarkably well, and at the first attempt all six machines got their messages. Sqdn.-Ldr. Probyn has cause to be satisfied with his pilots and his Jaguar-Atlas machines.

Individual Aerobatics

Event C was a display of individual aerobatics by Flying Officers Stokes and Turner Hughes, of No. 56 (Fighter) Squadron. The machines used were Jaguar-Siskins. The evolutions carried out were mostly loops and "zooms," coming out in half-rolls; also slow rolls while the two machines were converging on each other. The timing of the two machines was not altogether beyond reproach,



Crazy Flying: F/O Campbell and P/O Whittle, of No. 2 Training School, give an exhibition on Avro-Lynx Machines. (FLIGHT Photo.)

one of them being on occasion several seconds ahead of the other in a particular evolution.

Reserve of Officers' Race

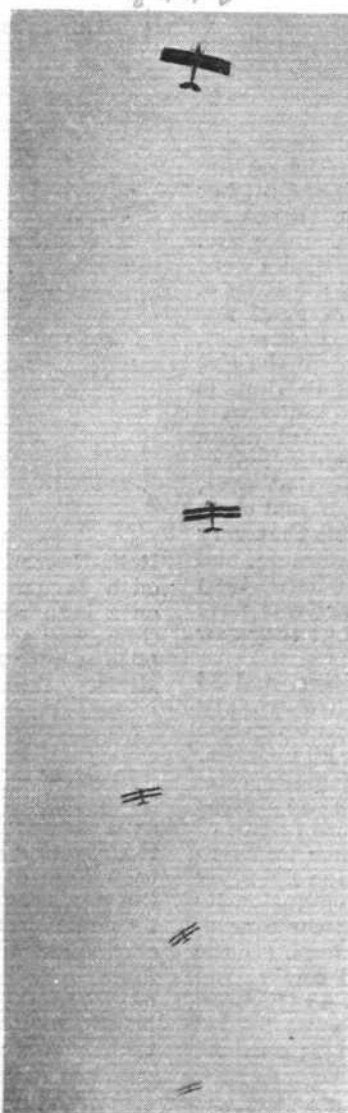
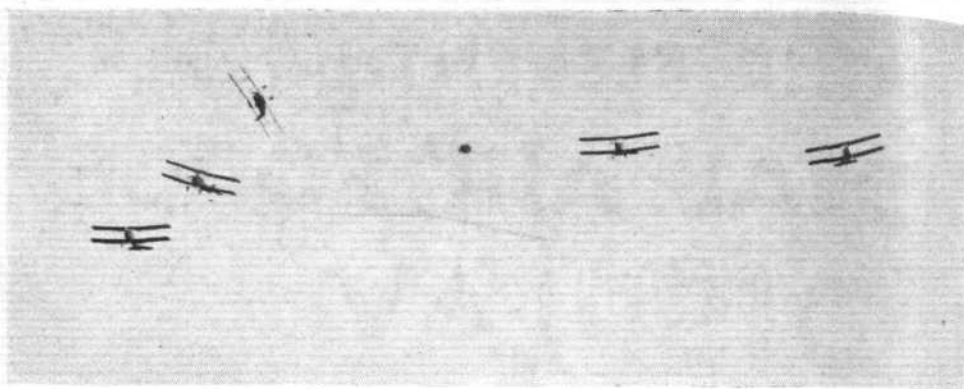
Event D.—This was a scratch race of 28 miles, for representatives of the four civilian training schools of the R.A.F. Reserve of Officers. The four schools and their representatives were: the De Havilland School (F./O. G. H. de Havilland), the Bristol School (F./O. R. W. H. Wright), the Armstrong-Whitworth School (F./O. A. C. S. Irwin), and the Blackburn School (F./O. S. M. Thomas). The machines used were Genet-Moths painted the most hideous colour ever applied to a respectable aircraft. It was a cross between salmon-pink and old rose, and conveyed the impression that what one of these colours had lost in scent the other had gained; in fact, one could almost *smell* them across the aerodrome. Already at the start one of the four Genet-Moths took the lead and kept it, closely followed by the second. Nos. 3 and 4 seemed to get more and more spread out as the race went on. Towards the finish, machine number 2 seemed to catch up a good deal and to achieve a close finish. It was not possible to know who was who, and there was an inexcusably long interval before the result was announced. When it was broadcast, the Bristol School was found to be the winner, with the Armstrong Whitworth School a close second, and the Blackburn School third.

Formation Flying by A.A.F.

Event E.—The Auxiliary Air Force is now taken seriously by the Air Council. It is no longer equipped with types which the regular R.A.F. has discarded as obsolescent. The bombing squadrons of the A.A.F. now use the Wapiti, and they are the only squadrons of the command Air Defence of Great Britain which use the

On right: Gipsy Moths from C.F.S. getting into line astern, inverted.
(FLIGHT Photo.)

Below: Part of the Aircraft Park and Enclosures. The Royal Box is in the background, on the left.
(FLIGHT Photo.)



Flight Aerobatics: Five Gipsy Moths, flown by instructors from the C.F.S., getting ready to fly in formation. The leader (Chick) is seen half-rolling into the inverted position. (FLIGHT Photo.)

Wapiti as a bomber. In fact they are the only squadrons in Great Britain which have the Wapiti in any guise. Overseas the Wapiti is regarded as a "general purpose" machine. Judging from the exhibition of new and experimental aircraft in this year's Display, one version of the Wapiti may soon be used by the army co-operation squadrons in Great Britain. But at the moment it is purely a bomber only when issued to the Auxiliary Air Force. The squadron chosen to give the British public a taste of its quality was No. 600 (City of London) (Bomber) Squadron, which is commanded by a former Air Minister, Sqdn.-Ldr. the Hon. and Right Hon. F. E. Guest, C.B.E., D.S.O. The wind was rather bumpy when the nine Wapitis took off in "squadron formation," but the take off was very good. Up in the air they changed to "squadron V," and in that formation flew over the aerodrome from the north. As they approached and presented a vertical view, one could see the machines swaying gently as the pilots corrected the bumps, but when the squadron was right overhead the plan view was absolutely accurate formation. The second fly over was in "flights line abreast," the two outer flights having moved up in line with the leading flight. The third crossing took the form of a spectacular dive and zoom in "squadron formation." This is a searching test of training, but the pilots kept close formation and each held his place with the accuracy worthy of an experienced regular. The taxpayer is obviously getting very good value for the very moderate amount spent on these volunteer airmen. They are a real asset to the country.

Air Combat

Event F.—The chief interest of the next item was that it marked the only appearance in this year's Display of our latest standard fighter, the Bulldog with Jupiter engine. A flight of No. 3 (Fighter) Squadron had to attack a Horsley of No. 100 (Bomber) Squadron. As a Display item, it was not well stage-managed. Four times the Horsley flew across the aerodrome, and during each crossing the three Bulldogs delivered one concerted attack. Not more than three or four rounds were got off by any one fighter in any one attack. At the conclusion of this brief attack the fighters took up formation again while the Horsley turned. The first

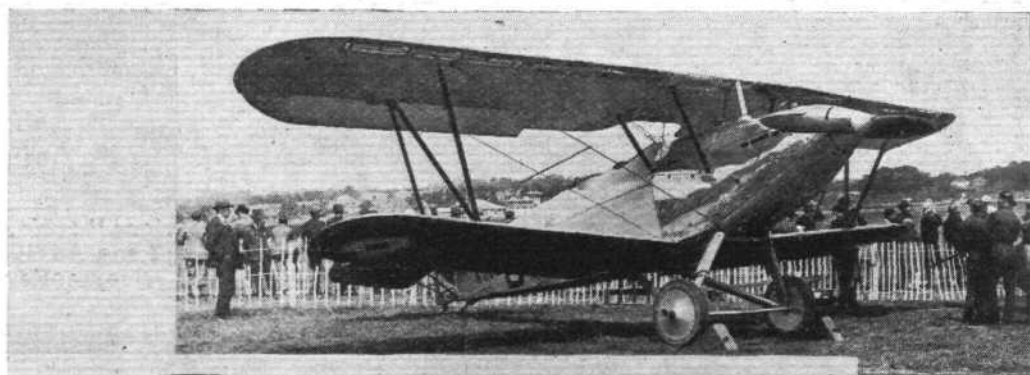


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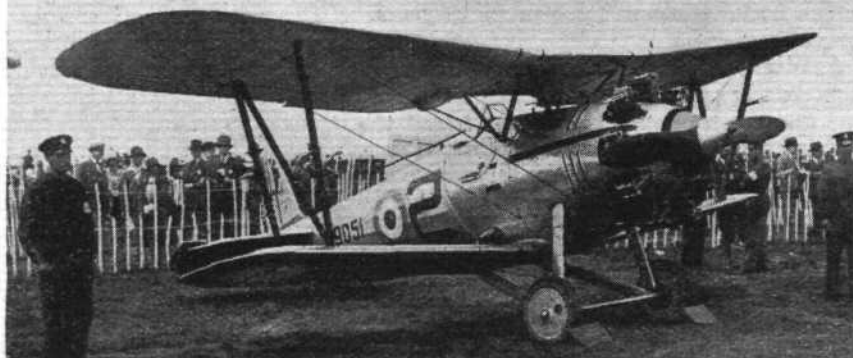


New and Experimental Types

THE Aircraft Park this year had several interesting types to show. Above is seen the Pterodactyl (original model). In the set of photographs on the right the machines are, starting at the top: The Hawker "Hart" with Rolls-Royce "F" type engine. This machine has been fitted with steam cooling. Note the condensers along the leading edge. The Bristol Bullpup is an interceptor fighter. The new Vickers night bomber is fitted with Rolls-Royce "F" engines. Note the gun position in the tail. The two British Schneider types. Nearest is the Gloster-Napier VI, and behind that the Supermarine Rolls-Royce S.6, which won the contest and established a world's speed record of 357 m. p. h. Below, on the left, the Blackburn Lincock, and on the right, the De Havilland Interceptor Fighter with Napier "H" engine. (FLIGHT Photos.)



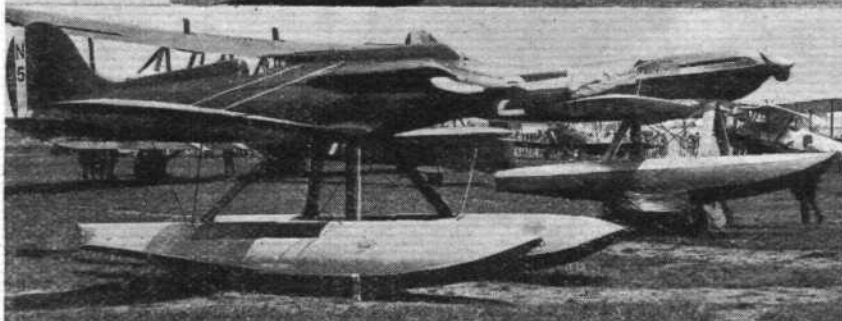
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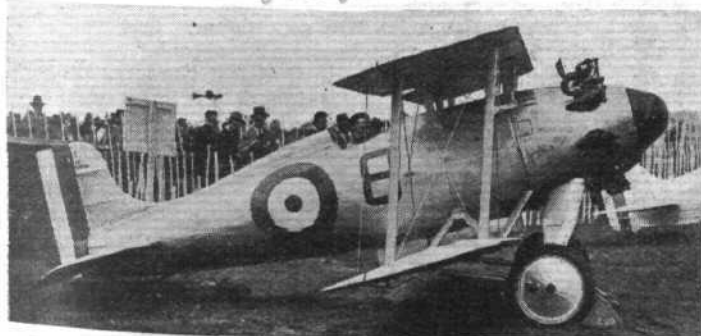


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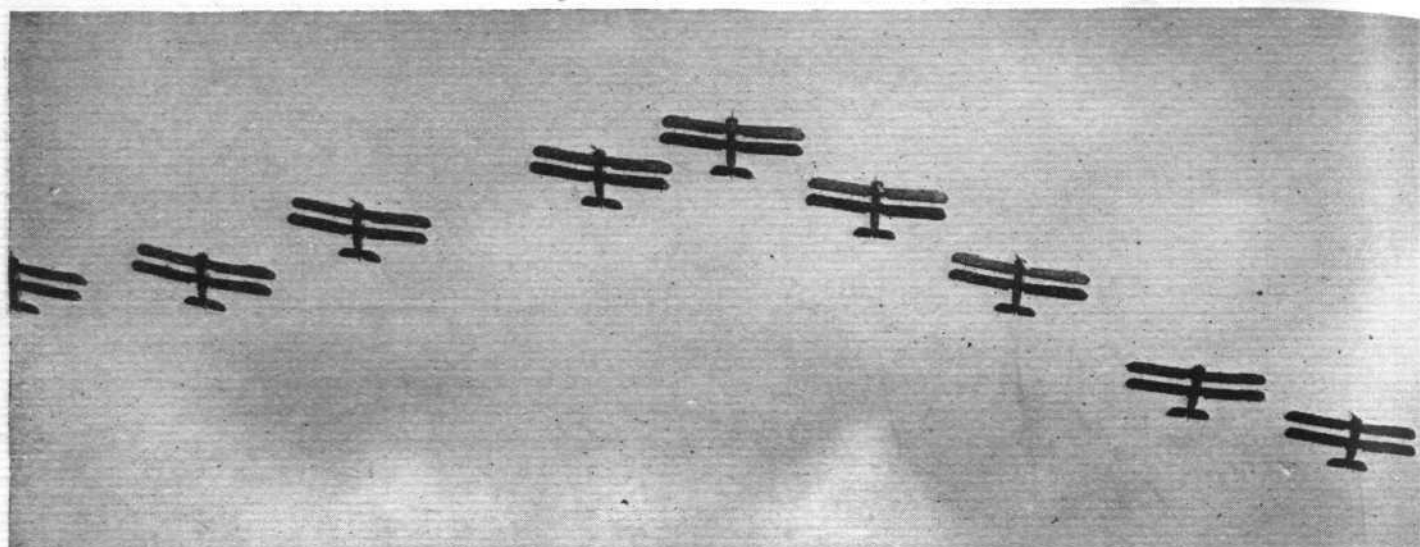
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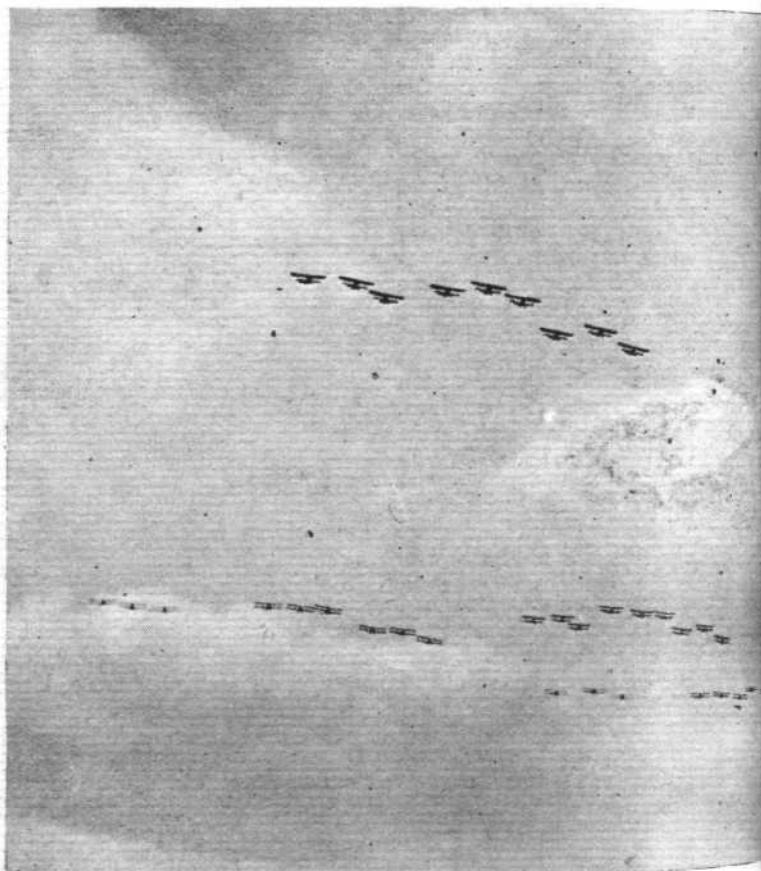


two attacks were made with all three Bulldogs above the bomber. In the third attack one Bulldog dived below and zoomed up at the tail. Doubtless the idea was to illustrate different forms of attack, but the result was disjointed and not realistic. Finally, one Bulldog and the Horsley emitted smoke to simulate being set on fire. We have seen air combat staged with much better effect in some previous years.

Artillery Observation

The Army squadrons had their turn in the next item. A convoy of three or four lorries belonging to our friend the enemy was seen moving across the aerodrome. Flight-Lieut. C. H. Schofield of No. 4 (Army Co-operation) Squadron was up on patrol in his Atlas, and promptly dived on them with his forward machine gun going. Then he flew at an angle to let his rear gunner have a shot, and the latter evidently put a bullet through a vital part of one of the engines. The

"The Terriers": No. 600 (City of London) Bomber Squadron of the Auxiliary Air Force keeps wonderful formation. (FLIGHT Photo.)



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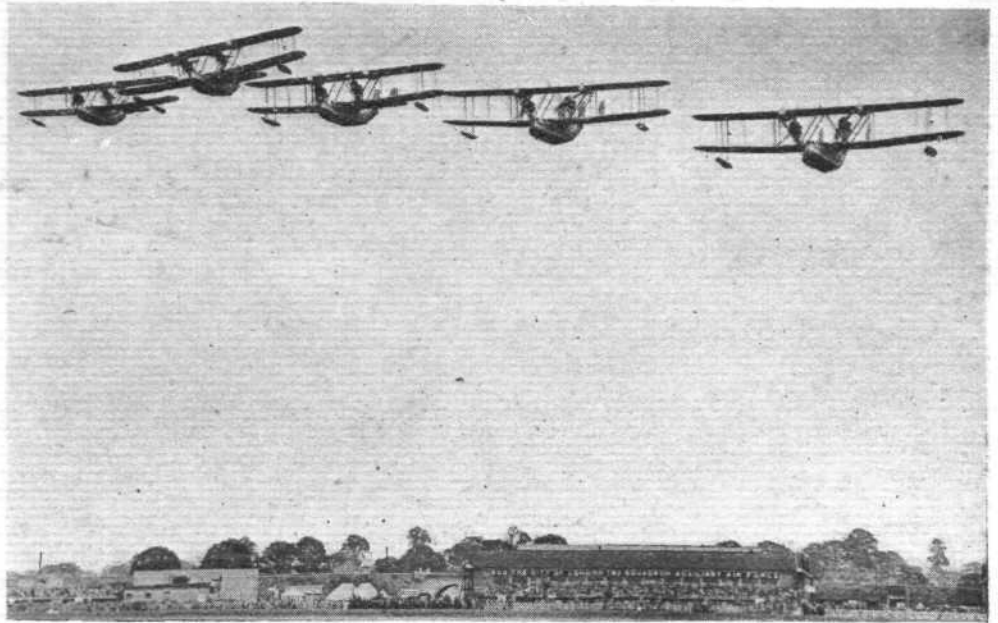
Strafing an Encampment: The Flycatcher zooms after dropping its bombs. (FLIGHT Photo.)

lorry stopped and its companions basely deserted it. The Atlas called up a field battery of the R.A. with much buzzing of Morse, which the loud-speakers duly repeated for the edification of the crowd. Presently a bang and a puff of smoke occurred in the neighbourhood of the lorry. More Morse and more delay, occupied, so the loud-speaker told us, by the apparently tedious and lengthy operation of making the correction which the Atlas had sent down. One wanted to put a little ginger into that battery commander. Shots and Morse continued at intervals, until at last the lorry vanished in smoke, to the great satisfaction of the spectators. We know that the work of the army squadrons of the R.A.F. is splendid and invaluable, but this event needs to be speeded up a bit for Display purposes. It would also be an improvement if odd Bristol Fighters were restrained from flying about the stage when they have nothing to do with the turn of the moment.

The "Freak Formation"

Event H appealed to the lay mind and to the technician as well. It consisted in formation flying and subsequent

individual evolutions by three experimental types of aircraft: The Cierva Autogiro, the Handley Page "Gugnunc," and the Hill-Westland "Pterodactyl." No more amusing spectacle has ever been seen at a Royal Air Force Display than these three, apparently ill-assorted, types flying around in very good formation. And so they gave the crowds something to laugh about. At the same time, anyone seriously interested in the art and science of flying must have felt pleasure at the thought that, wonderful as are the abilities of the modern aeroplane of orthodox design, brains are still hard at work seeking if possible to evolve types of flying machine that shall be an improvement, in some particular respect at least, on anything hitherto conceived. That in thus seeking for better things an inventor may sometimes be led to follow a path which leads not to success but to disappointment should cause no



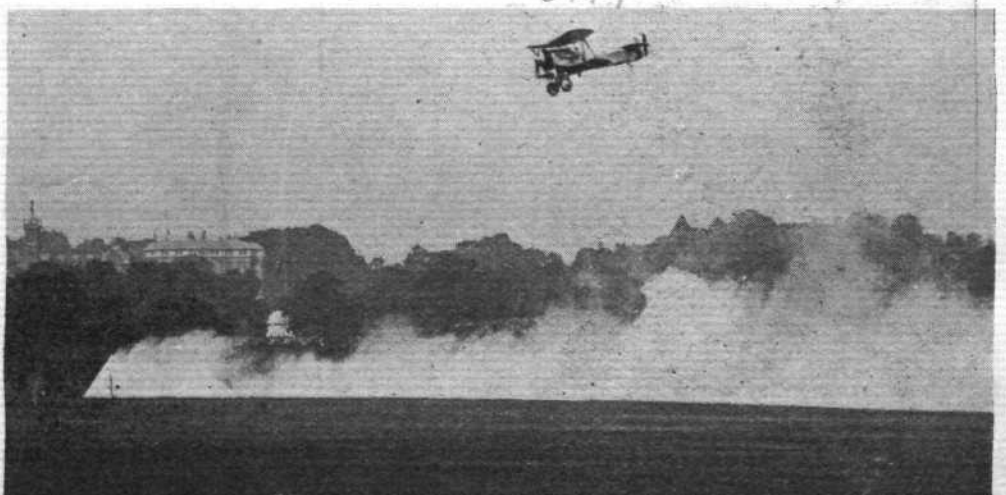
The Coastal Area: Five Supermarine Southamptons from Calshot visit Hendon. (FLIGHT Photo.)

the sight of three very unconventional types arouses in the serious onlooker thoughts such as those expressed above. As to how many of the three types flown will survive and continue to develop, he would be a bold man who would care to venture an expression of opinion. Each of the three types has some advantage peculiar to itself, and all three, dissimilar as they are, have this one aim in common: the avoidance of the stall. That it should be possible to demonstrate to such vast crowds as witnessed the Display three so entirely different methods of guarding against stalling illustrates better than anything else could have done that there is no cause to regard the aeroplane of the present day as the final word, and the stall as an evil that will ever be with us.

It was a matter for regret that the "Pterodactyl" which actually took part in this demonstration was the original one and not the latest type. This placed the Hill-Westland machine at some disadvantage as compared with the other two, which may be said to be quite up-to-date. However, Flight-Lieut. Maitland got quite a lot out of the old "Pterodactyl," although he only had 35 h.p. available in his Bristol "Cherub."

The "Autogiro" and the "Gugnunc" vied with each other, piloted by Flight-Lieut. Rogenhagen and F/O. Leach respectively, in slow flying, and under power there appeared to be little to choose between them in the matter of the low speed at which they could remain in the air. In actual landing, however, the "Autogiro" ultimately scored, its last landing being, for the last few feet, a perfectly vertical descent, without any forward speed at all. The short run to take-off was approximately equal for the two machines. Of the "Gugnunc" it might be said that it scored somewhat,

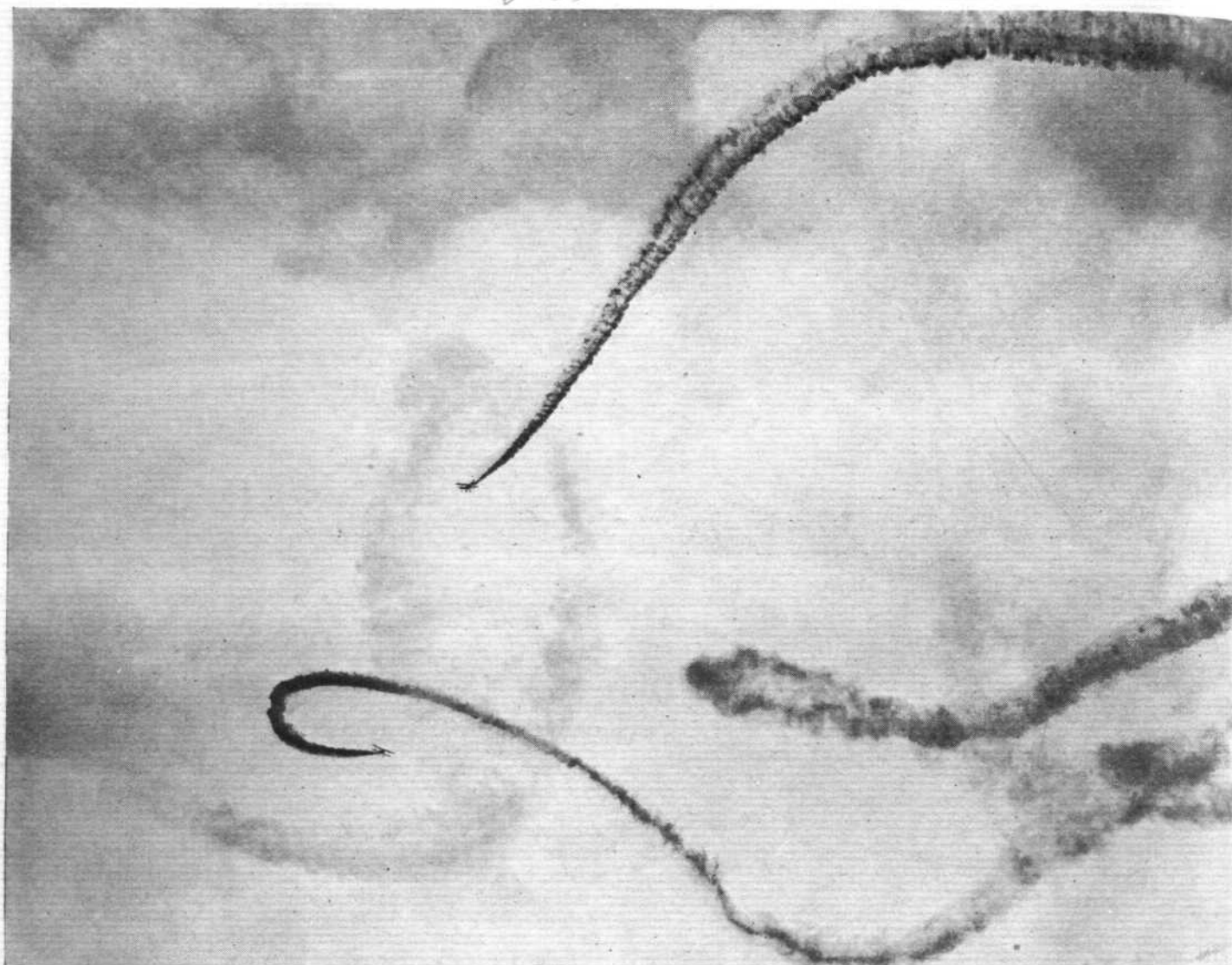
Below: Bombing an Encampment: A Flycatcher dropping its eggs. (FLIGHT Photo.)



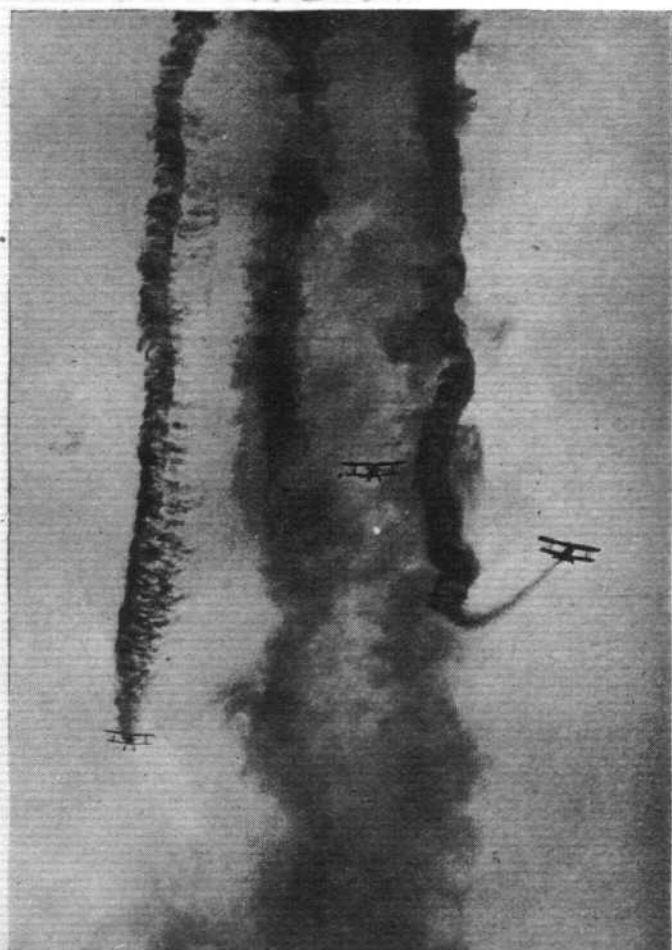
54 Machines flying past: Three Fighter Squadrons on Siskins, one Bomber Squadron on Foxes, and two Bomber Squadrons on III F's. (FLIGHT Photo.)

surprise nor, looking at the subject broadly, necessarily regret. Better that time and money should, in a few instances, be wasted on exploiting possible avenues of progress than that any single idea of real merit should be overlooked or neglected. By this we do not in any way mean that either of the three unorthodox aircraft in this event are to be regarded as tombstones over their inventors' shattered hopes. It is merely that

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Links in the Chain: Three Martlesham pilots giving an exhibition of aerobatics with smoke. Below: Another evolution by the same pilots mounted on Grebes. (FLIGHT Photos.)

in the matter of appearance at any rate, by looking, when flying normally, something like an aeroplane. The "Autogiro," of course, never did. To us it always seems that Mr. Cierva has translated into mechanical movement and mechanism the flight of insects, while the flight of birds has its mechanical counterpart in the aeroplane, orthodox or otherwise.

The so-called afternoon events started at 3 p.m., with the take-off of six squadrons, which were later to perform with striking effect. There were three squadrons of fighters, all in Siskins, namely, No. 56 F.S., under Sqdn.-Ldr. A. Lees, A.F.C.; No. 29 F.S., under Sqdn.-Ldr. E. J. D. Routh, and No. 111 F.S., under Sqdn.-Ldr. L. H. Slatter, O.B.E., the captain of the 1927 Schneider team. The three bomber squadrons were No. 12 B.S. (Fox with Felix and Rolls Royce F), under Sqdn.-Ldr. F. H. M. Maynard, A.F.C.; No. 207 B.S. (Fairey 3F, with Lion), under Sqdn.-Ldr. E. A. Beaulah, and No. 35 B.S. (3 F.) under Sqdn.-Ldr. B. E. Harrison, A.F.C.

Individual Aerobatics

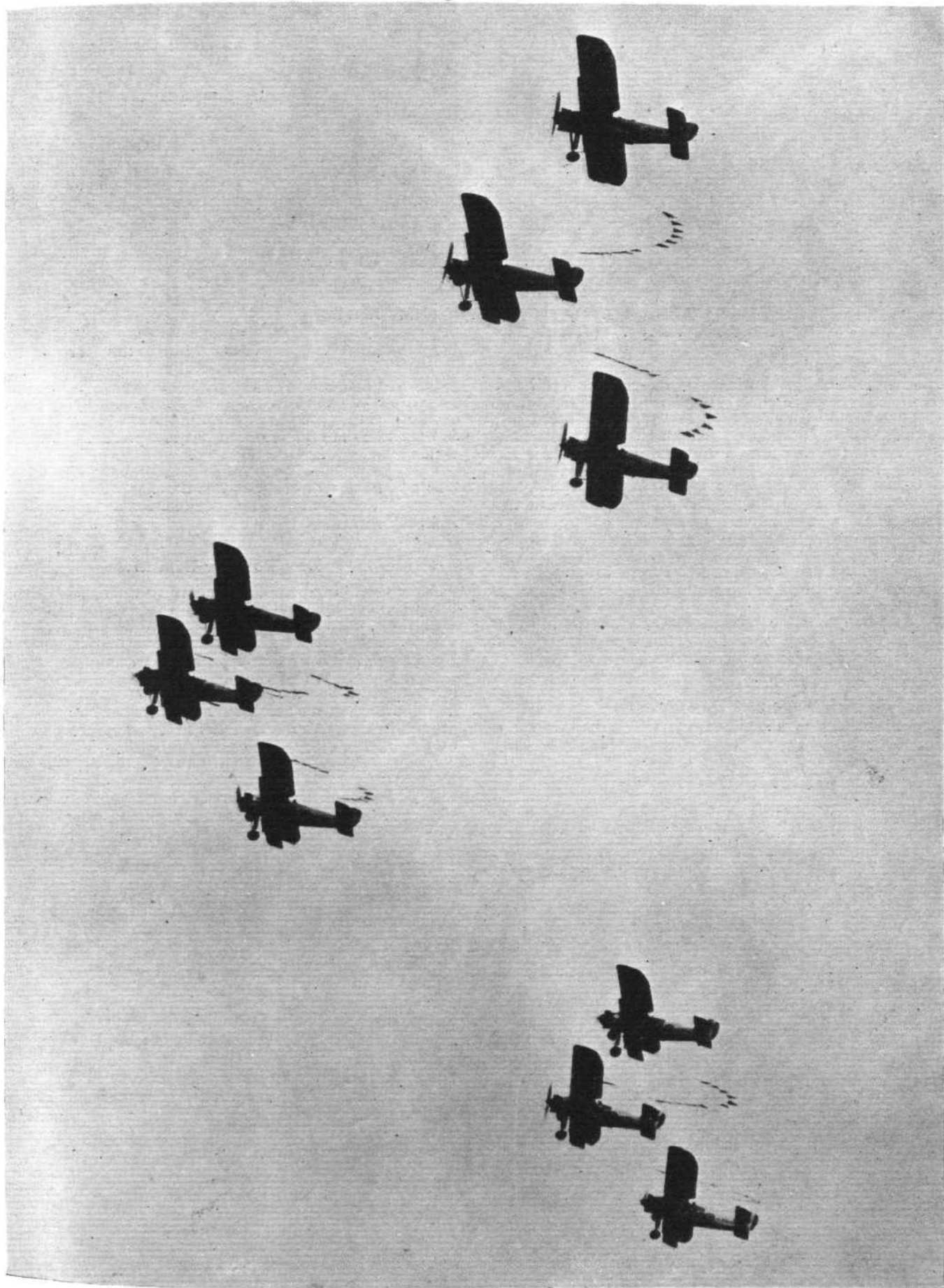
Event 2 was to some extent a repetition of the exhibition during the morning, but was carried out by two pilots of No. 23 (Fighter) Squadron, Flying Officers McKenna and McDougall. "The Macs" were, however, very much more "finished" in their show than were the two pilots of the morning's event. The two "Gamecocks" kept perfectly wonderful time, each commencing an evolution at exactly the same instant as his "opposite number," and carrying it through to the end in perfect synchronisation. "The two Macs" began with the same evolution which they did so well at Heston on the day of the Household Brigade Flying Club Meeting: Zooming upward, until on the point of doing a tail slide, each machine fell outward and half-rolled into a

normal attitude. This manœuvre is very effective indeed, and is likely to become a popular "show number." The upward spins were splendidly done, as were also the slow rolls with the two machines approaching and passing each other. Their half-rolls into the inverted position, meeting in the centre of the aerodrome and crossing, half-rolling into normal flight again, were also extremely well timed and executed.

Attack on an Encampment

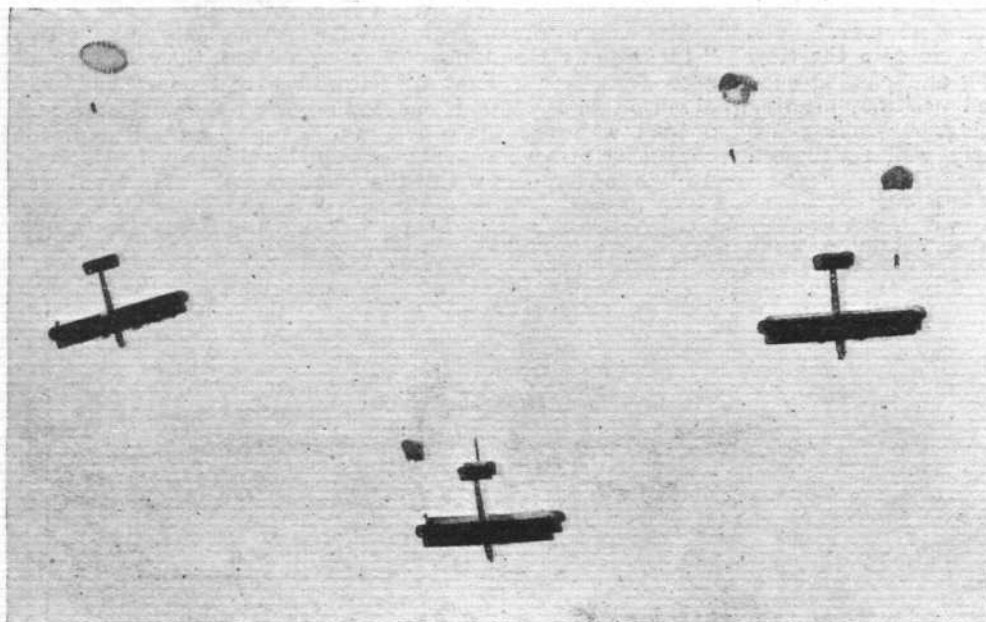
The next event presented itself very suddenly, for the two "Individuals" had no sooner completed their display of aerobatics than a flight of Fairey "Flycatchers" suddenly dived on to the aerodrome from behind the enclosure and opened a heavy machine-gun fire upon an encampment consisting of several tents—which, by-the-way, had sprung up like mushrooms with equal suddenness. This event was

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Squadron Aerobatics: The Machines of No. 43 (Fighter) Squadron in formation. Note that the machines of each flight are tied together. (FLIGHT Photo.)

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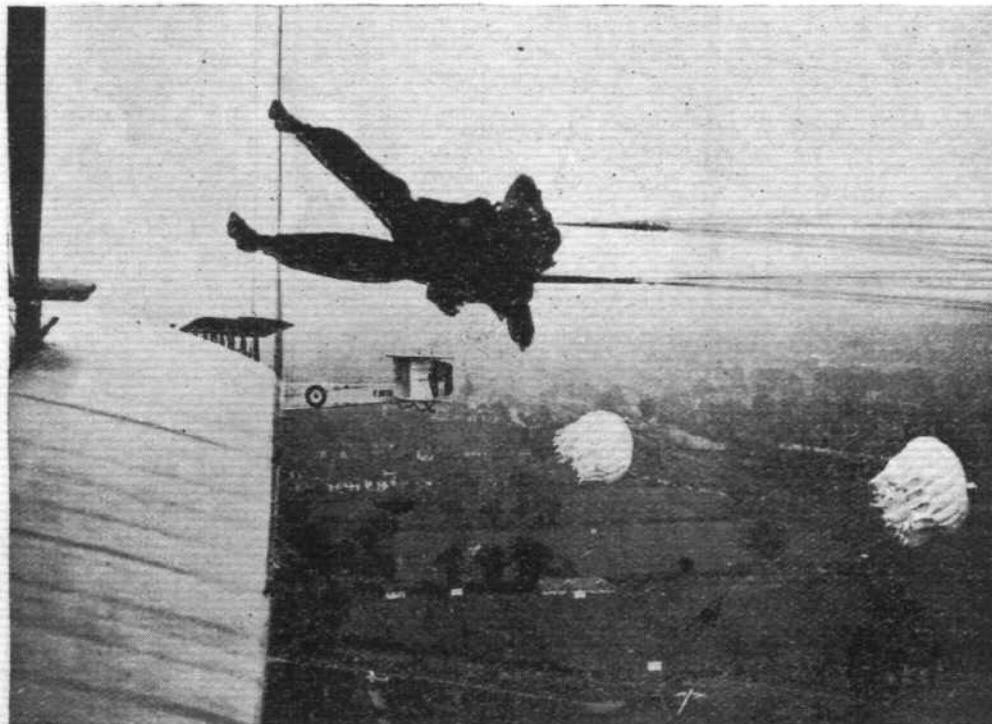
Parachute Section, Home Aircraft Depot: Six parachutists leaving the three Vimys. (FLIGHT Photo.)

a demonstration of attack with machine-gun fire and bombs by No. 404 (Fleet Fighter) Flight, under Flight-Lieut. L. C. Sharman, with Fairey "Flycatchers" fitted with Armstrong-Siddeley "Jaguar" engines. If we remember rightly, this is the first time a unit from the Fleet Air Arm has given an individual "turn" at the Display. In this event, after their first volley in formation, the 'planes separated, and proceeded to attack individually with their machine guns by the converging method. They followed this up with converging bombing, which differed slightly from the similar tactics given at previous Displays in that the machines did not fly round in a circle, diving in turns, but spread out and dived to the attack independently and from all directions.

The first bombs fell a little wide, but later the hits were more direct, and soon only two tents were left standing. It should be noted that no bomb sights are used, the bombs being released from about 50 ft. at the judgment of the pilot.

Fighters and Day Bombers

At 3.20 p.m., the six squadrons which had taken off 20 minutes before came over together as two wings.



Tense Moments: Parachutists being pulled off. The machines are Vickers Vimys.

The fighter wing led with the bomber wing behind. Each wing was in the same triangle formation in which a squadron usually works. The 72 aeroplanes made a fine imposing sight. After crossing once, the group wheeled, each wing taking up the formation which can be described as "squadrons astern." Each of the six squadrons dived in turn low down towards the aerodrome, and then zoomed up. All the six made a good showing, but the best were No. 56 among the fighters and No. 12 among the bombers.

Flying Boats

As the fighter and day bomber squadrons made their bow, five Supermarine "Southampton" flying boats (Napier "Lions") appeared over the aerodrome, across which they "sailed" majestically in Squadron V, their "Lions" purring with pride. They were from No. 201 (Flying Boat) Squadron, under Sq.-Ld. E. F. Turner, A.F.C., and had flown up from Calshot, their entry into the arena being wonderfully timed.

It was a magnificent sight as they flew past, but when they turned outside the aerodrome and returned, flying past the enclosures in Echelon to right formation no higher than about 300 ft., there must have been but few present who were not thrilled through and through.

Last year, it will be remembered, only one ventured "into" the aerodrome, but this time, so well tamed are the "Lions," extreme reliability of same enabled all five thus to skim the surface.

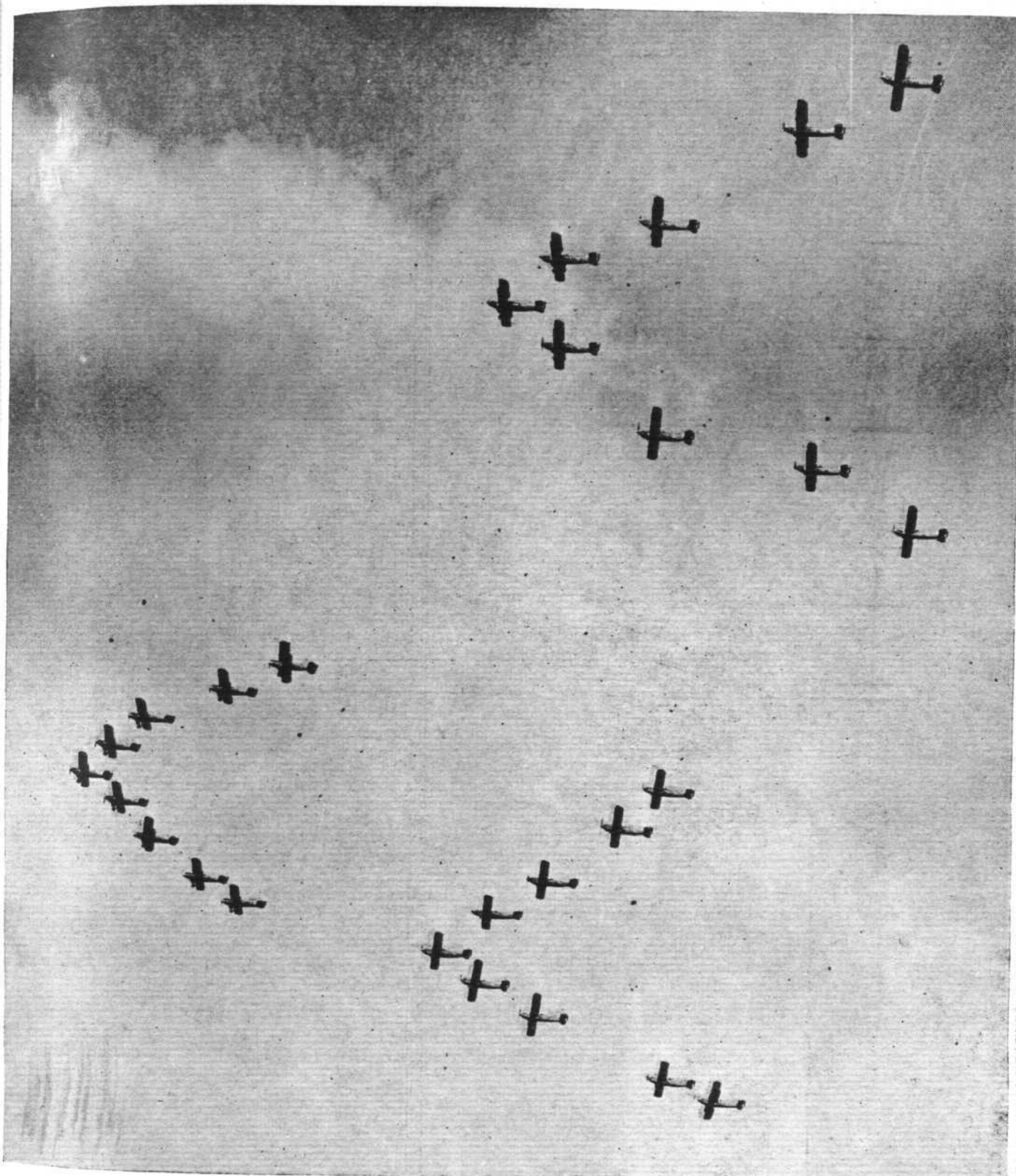
Day Bomber Evolutions

After the flying boats had retired to their green room, the three bomber squadrons which had taken part in the group evolutions, once more took the stage. The wing was in the usual triangle, but each squadron was in "Squadron V." No. 12 led, in its Foxes, and flew right well. Faults could be noticed in each of the other squadrons. Then all three in "squadron line astern" (i.e., all nine machines in single file) approached the aerodrome from different directions, and crossed in the centre. This was followed by one grand circle of the 27 machines climbing upwards like a coiled spring.

It was a sight which greatly pleased all those spectators who rate quantity more highly than quality. Only one slight blemish could be noticed in the performance of that fine squadron, No. 12, which was leading, and so had the easiest task, but both the others were ragged, and the whole event seemed under-rehearsed. It was the only item on the programme which was definitely below the standard which one has come to associate with the R.A.F. Display.

R. 101

Talking of stage management, Hendon seemed that day to be inadequately provided with what play-goers and actors mean by the word, wings. Aeroplanes, even whole groups of them, can hide themselves in the distance until the call boy tells them that their cue is coming, and then they appear almost unexpectedly. But R 101 cannot so hide herself. All the afternoon she had been cruising round the horizon as though looking for a cloud to hide behind decently until her turn came to appear. It was all in vain. We could not help seeing her before she was legitimately on view. But when her turn did come, she used it



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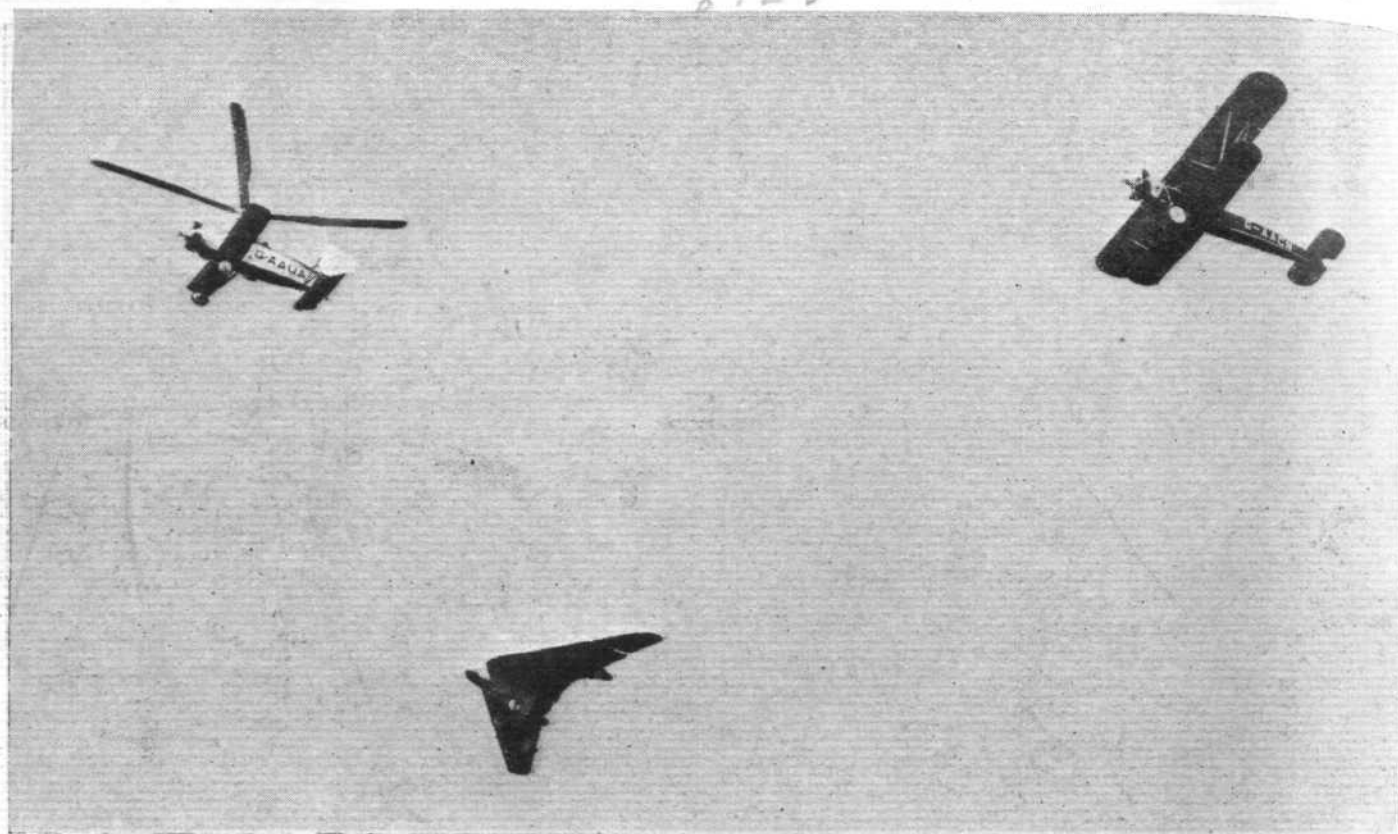
EVOLUTION BY THREE DAY BOMBER SQUADRONS: Fairey Foxes in the lead, two
Fairey III squadrons on the wings. The Foxes kept the better formation. (FLIGHT Photo.)

as though she had been trained in the Ben Greet school. She stayed as far off as possible until the very latest moment, and then came down with all her four forward engines working. At the last moment she put on left rudder and depressed her elevators to get well down into the centre of the aerodrome. It was rather a sharp turn, and it was interesting to see how little movement of the rudder was needed to bring the ship round. Many thousands in the neighbourhood can never have seen one of our new big airships before, and this close-up view was evidently highly appreciated. The effect was increased when the sun broke through some temporary haze, and glittered on the aluminium sides. Altogether this was one of the most popular items on the programme.

Flight Aerobatics

Event 8 was looked forward to with great expectancy by those who take more than a superficial interest in service matters. The Central Flying School instructors are held in very high esteem wherever pilots foregather, and it was rumoured that this year the five pilots selected to represent the C.F.S. had really excelled themselves. Events proved that for once rumour had spoken truth. For sheer downright skill in actual piloting, and for judgment of time and distance, these five must surely be unsurpassed. Led by Flight-Lieut. Chick, and with Flight-Lieut. Barwell and Flying Officers Pike, Johnson and MacG. Watt piloting the other four machines, this Flight, mounted on Gipsy Moths, showed a degree of precision, particularly in inverted "mass" formation.

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The "Freak Formation": The Cierva Autogiro in the lead, with the Handley Page Gugnunc on the left and the Hill Pterodactyl on the right. (FLIGHT Photo.)

would be extremely difficult to beat.

Whether they were in line astern, upside down, or "going round the mulberry bush," still inverted, they kept their places with an accuracy which many a good pilot would take pride in, even "right way up." Once the middle machine of the five (we do not know which it was and it does not matter in the slightest, as the pilot was obviously not to blame) was seen to sink below the level of the other four. The pilot did his best, but, obviously, the machine would not climb back to its proper level and continued to sink.

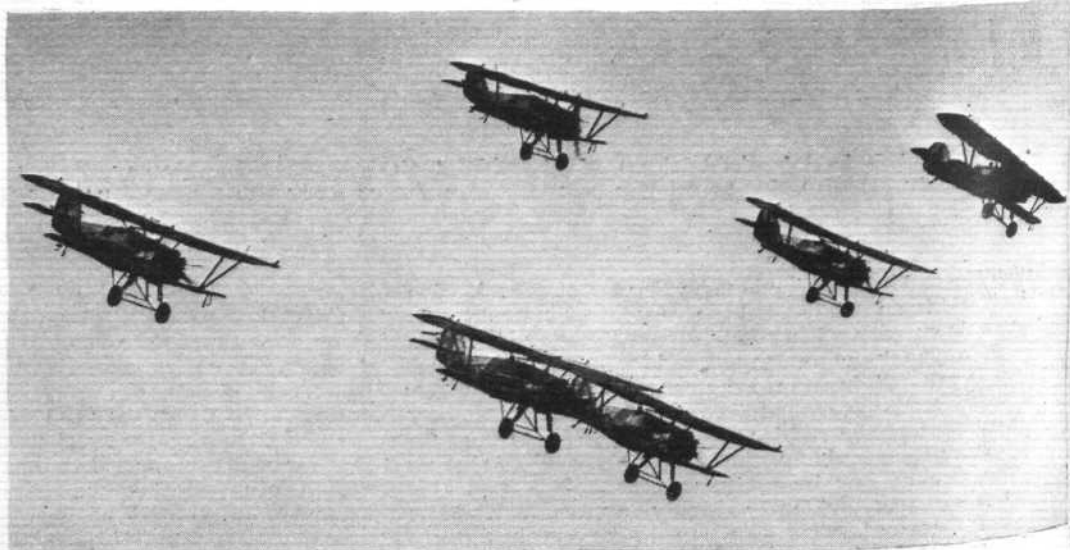
There were those who rather felt that the pilot "hung on" too long, but he seemed to us to be expecting his engine to pick up its missing revolutions and so enable him to regain his place in the inverted line. However, the engine refused, and at last the pilot had no alternative but to half-roll into the normal attitude, climb back to his place in the formation, and half-roll into position again. One felt sorry that even this slight bit of imperfection should have intruded itself, although, as we have said, it obviously was not the pilot's fault.

After the demonstration of inverted flying, the Flight did a loop in formation, and then Chick inverted, and in this position led his Flight along, the other four machines remaining "right way up." The formation, distance-keeping, etc., were perfect, and the Flight was justly applauded when it finished its display.

The Parachutists

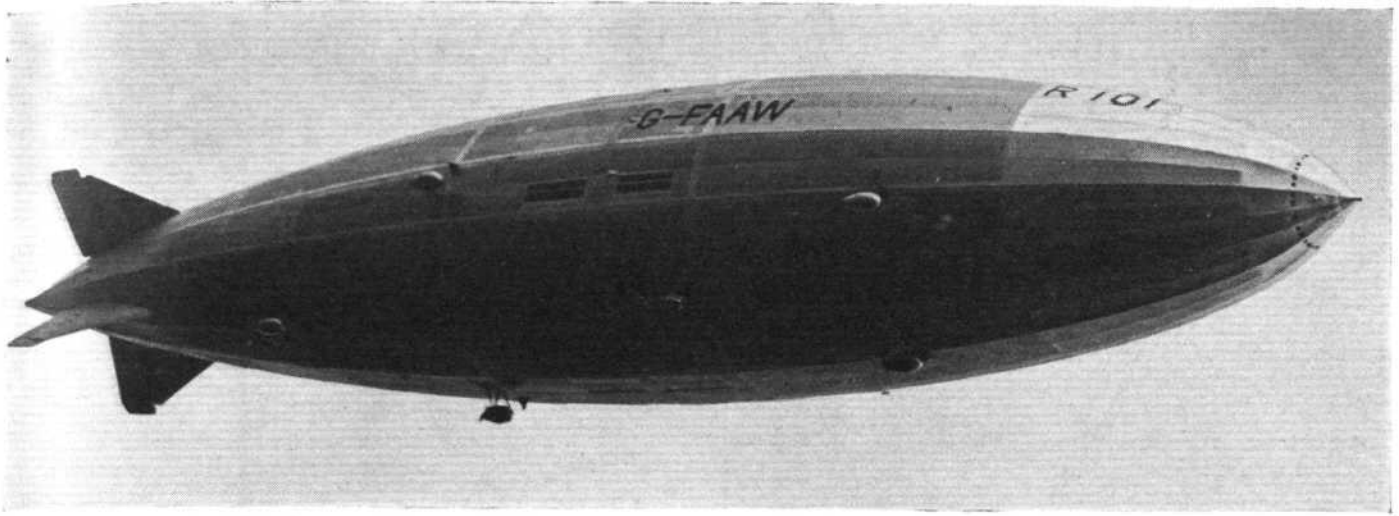
Event 9 was about the only doubtful "starter" on the programme. It was pointed out that parachute jumps may

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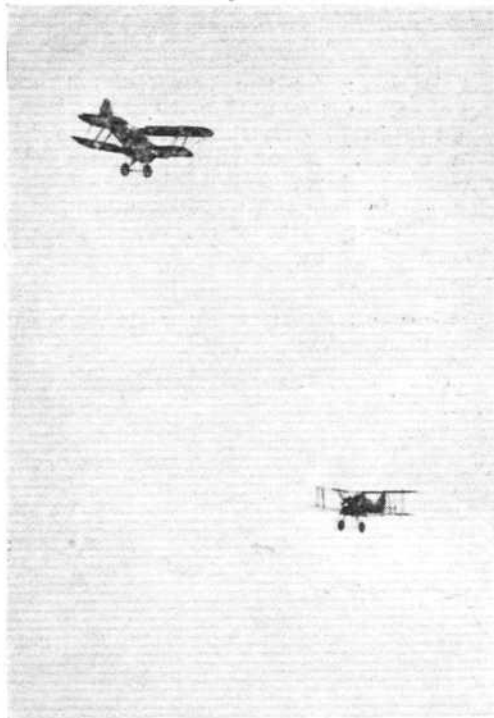
Left: Start of the Headquarters Race (Genet Moths). Above: Siskins flying past. (FLIGHT Photos.)

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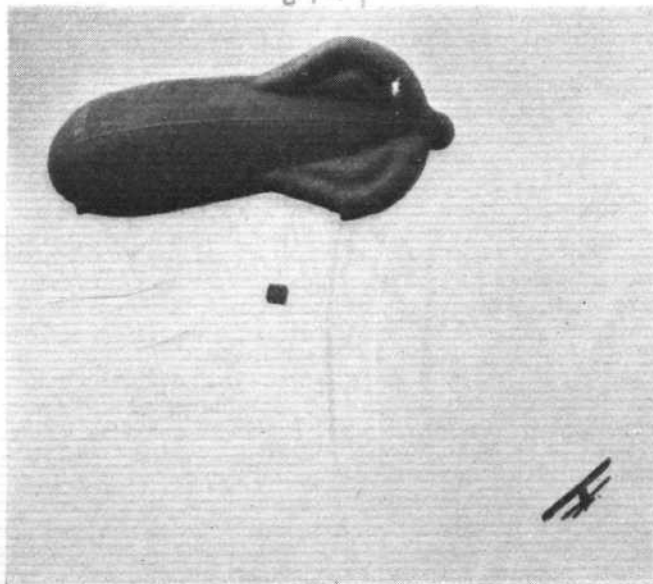
LIGHTER THAN AIR: An unusual view of R 101 flying overhead. To view this picture the paper should be held overhead. (FLIGHT Photos.)

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Individual Aerobatics: Two Gamecocks from No. 23 (Fighter) Squadron gave a fine display.

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Strafing the Kite Balloon: A Siskin attacking.

be unduly risky if a strong wind is blowing, and that the descent by six parachutists from three "Vimys" would not be made by "live" men unless the weather was suitable. As luck would have it, the weather was good, and the "live" drops could be made. This demonstration was an example of the normal Royal Air Force training in parachute jumps, and was given by the Parachute Section of the Home Aircraft Depot. The three Vickers "Vimys" came in over the aerodrome, and on a given signal the six men, two on each machine, were "pulled off." The men stand on small platforms attached to the interplane struts, and on receiving the signal pull the release; the pilot chute pulls the main parachute out, the wind catches it, and the men are literally torn away from the machine, the parachutes trailing out horizontally, and the men necessarily swinging somewhat before they settle down to a steady descent. One of the six appeared to have difficulty in stopping the swing, but did so just before touching the ground, and landed quite close to the Royal box. There were no mishaps of any kind.

Service Skywriting

A happy combination of the technical with the spectacular made the next event one of the outstanding features of the Display. It was an exhibition of aerobatics by officers of the Armament and Aeroplane Experimental Establishment, in which use was made of the coloured smoke, by means of the "Skywriting" apparatus lent by Maj. Jack Savage. In this way, the manoeuvres of the machines were not only easier to follow, but the general effect produced was really very beautiful.

The aerobatics were excellently carried out by Flight-Lieuts. D. M. Fleming, C.B. Wincott and J. R. Addams, on Gloster Grebes ("Jaguars"). Their entry took the form of a tremendous zoom, the central machine discharging white smoke, and the outer ones orange. Unfortunately, a

stiffish wind broke up the smoke patterns rather quickly, but nevertheless the colour effect—the white and orange smoke against the blue sky and grey-white clouds—was, as we said before, very beautiful.

After their first zoom they made a long "ribbon" across the 'drome (orange top and bottom), then all three zoomed again with half roll at the top, leaving three "pot-hooks" suspended in the sky. "White" then executed a huge loop, while "Orange" 1 and 2 looped through the ring so formed, one above and one below, thus forging three links of a chain. Next, "White" executed a series of loops (or vertical rings), through which the other two looped from opposite sides—the resulting effect being very pretty.

Finally, they brought their demonstration to a close by forming an enormous representation of the "Prince of Wales' Feathers."

Crazy Flying

Crazy flying was this year "performed" by Flying Officer G. E. Campbell, D.F.M., and Pilot Officer F. Whittle, both instructors from No. 2 Flying Training School, and winners of a competition open to the Flying Training Schools at Home.

Technically, this event was a demonstration of the capabilities of the standard training aircraft, and the liberties that can be taken with a lightly-loaded machine in the hands of a skilled pilot. Non-technically it was a hair-raising and comical episode.

While both pilots gave a really excellent display, we felt that it was not quite equal to previous "crazies"—especially those of Noakes and Longton. However, the two Avro Lynxes executed impossible evolutions, about 5·999 in. from the ground all round the aerodrome. Sometimes they would charge each other, crabbing sideways and pass with apparently only inches to space, or would allow each other to pass by raising adjacent wing-tips.

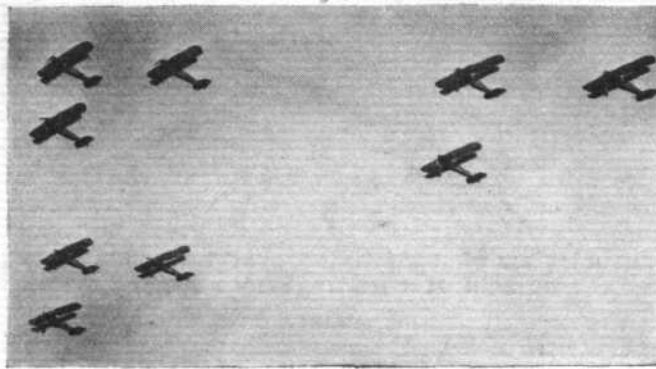
Then they skimmed across the grass in "mass" formation,



one banked to the right, the other to the left, and when they landed at the conclusion of their "turn," they appeared to do so locked together X-fashion.

Squadron Aerobatics

There are some people who regard it as a duty to have tea at 4.30 p.m., and a pleasure to spend more than nine minutes over it. Such people deserved sympathy on Saturday, for either they must have had to sacrifice duty and pleasure, or they had to miss some part of the most excellent performance of the day. The gem of the whole Display was the squadron aerobatics of No. 43 (Fighter) Squadron from Tangmere, flying Siskins; and this came on at 4.39 p.m. The squadron had been

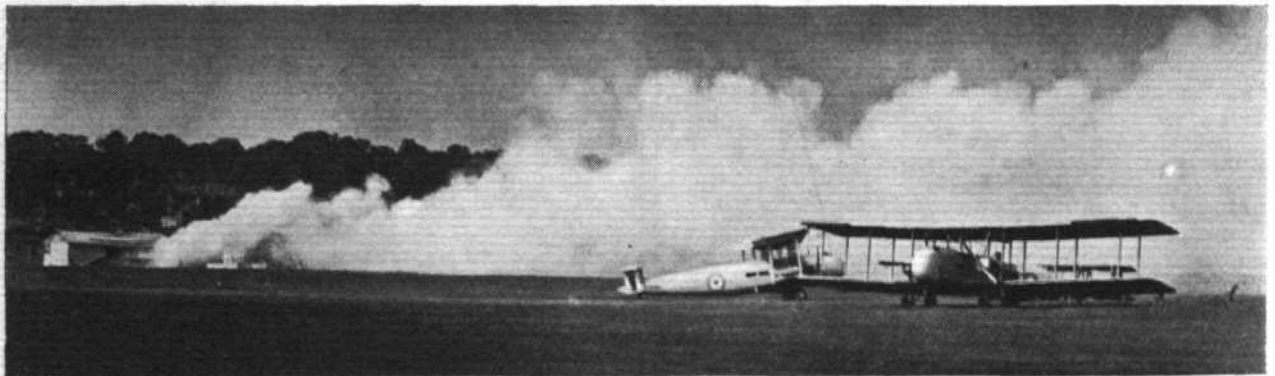


PIRATES BOLD: At the top (left) the Pirates try to take off in the stolen aircraft, but bombs are dropped (right) by British "Horsleys" (centre) with good effect. Meanwhile "Victoria" troop carriers arrive (below) and deplane a small force who capture the surviving Pirates and salve the booty. (FLIGHT Photos.)

same formation with added height. Then the nine machines took up "squadron line astern," and each machine in succession went up to the top of a loop and there did a half-roll. This was repeated with each flight still in line astern, but the three flights flying abreast. Then squadron formation was resumed, and to conclude the exhibition the whole squadron did two complete loops. In each of these manoeuvres the squadron showed the most perfect training and accuracy of drill. It was a most finished display, and very beautiful to watch.

The New Types

As in previous years an aircraft park had been placed between the enclosures, and contained a certain number of



splendidly trained, and it was splendidly led by Squadron-Leader C. N. Lowe, M.C., D.F.C. There are not a few officers who have won military crosses and distinguished flying crosses for most gallant work in the face of the enemy, but if Squadron-Leader Lowe had gained even a Victoria Cross, that would not be his greatest title to fame. All the many thousands of sportsmen who have followed Rugby football since the war speak with bated breath when the name of Lowe is mentioned. If they are Scots, Irish or Welsh, they may mention the name with execration. If they support the rose of England, their pulse will beat faster as they think of the little three-quarter who used to run so very fast down the right wing and make such breaches in the enemy's defences. Well, at the Display we cannot say that we saw Lowe himself, but we saw a Siskin which presumably contained him, and, above all, we saw his work. It is years since any fighter squadron has given such a perfect exhibition of flying at Hendon. To please the crowd the three machines of each flight had their wing tips joined by some easily broken string, gaily hung with streamers. These strings were never extended at all, but trailed behind in long loops. It seems rather a pity to give a circus touch to such a fine show of close formation flying. The squadron took off in squadron formation, and then changed to flights astern. The wheel as they changed direction at the end of the aerodrome was one of the prettiest manoeuvres of all. The strings were deliberately broken when the three flights in line astern each did a "Prince of Wales' Feathers," each flank machine doing a climbing turn outwards, and each flight leader going up in a half-loop and finishing with a half-roll. This brought the squadron back on its tracks in the

new aircraft types. Three of these have already been referred to: The Autogiro, the Gugnunc and the Pterodactyl. In addition, there were on view two non-flying types: the Supermarine S.6 with Rolls-Royce racing engine, winner of the Schneider Trophy contest, and the Gloster VI with Napier racing engine. Naturally these two speed machines attracted a great deal of attention.

A number of other types housed in the aircraft park came out at about 4.30 to fly past the enclosures, and then "evolute." These types were illustrated in last week's issue, and photographs of some of them are also given this week. Among these machines were three interceptor fighters, the Fairey Firefly, the Bristol Bullpup, and the de Havilland with Napier "H" engine. As was to be expected, all three showed a phenomenal climb, and it was certainly not possible to tell, merely by watching them, which seemed to have the better performance. The de Havilland interceptor was amazing if one remembered that it has an engine of only some 320 h.p. Nearly as spectacular a performance as the interceptors had the Blackburn Lincock, although it is fitted with a relatively low-powered engine, the Lynx.

The Hawker Hart is not, of course, a new machine, but the particular specimen flown was of interest in being the first British aircraft with steam cooled engine to be flown in public. The Vickers new twin-engined night bomber is not exactly a thing of beauty, but it appears to have a very good performance, which is what matters.

The day and night fighter class was represented by a Siskin, while the Wapiti was shown as an Army Co-operation machine. The Avro trainer provided an intermediate type between

(Concluded on page 764)

PRIVATE FLYING AND CLUB NEWS



(FLIGHT Photo.)

NEW IPSWICH AERODROME

THE Prince of Wales, by virtue of his landing at Ipswich on Thursday, June 26, formally opened the new Municipal Aerodrome. He arrived in a Wapiti with an escort of similar machines, and after landing made a short speech, in which he congratulated the municipality on their far-sighted policy of establishing this aerodrome—an aerodrome, he said, the like of which he felt sure every town and city in Great Britain would have in the not very distant future. After looking over the clubhouse, the Prince left for a round of engagements in Ipswich in connection with the Woisey Pageant to commemorate the 400th anniversary of the death of Cardinal Wolsey. He lunched at the Town Hall, and after seeing the pageant and many works in the town, returned to the aerodrome and flew back to Northolt.

The control of the aerodrome appears to have been vested in the Suffolk Aeroplane Club, who presumably will act as managers for the municipality. This will be a great change for the club, and they must count themselves very lucky indeed in being on the spot and being housed on such an aerodrome.



Hangar space is at present limited, but, no doubt, should any machines wish to spend the night there, then further space will eventually be provided.

The aerodrome itself is fairly large, but the approaches cannot be said to be perfect; on the south and south-west, pilots without much experience would find life somewhat hectic should their engine cut out just after clearing the aerodrome. The surface has several nasty ridges in it, although local authority is said to have had charge of the levelling, and it was one of these ridges which brought disaster to F/O. Store when taxiing his Breda. A wheel collapsed, but he managed to keep the machine fairly level, only to be caught by the ridge and turned over on his back. The ease and speed with which he got out of the cabin—after having turned on his central fire-extinguisher—although in an inverted position, speaks well for the size and arrangement of the cabin doors of this machine.

The Prince of Wales declares the aerodrome open.

(FLIGHT Photo.)

The aerodrome is at present surrounded by trees, but it is understood that many of these are coming down in the near future.

A display of sorts had been arranged, but general invitations were not issued to private owners, and apparently neither they nor the general public were desired to any great extent, as it was felt that it would be invidious to draw the people away from the town on the occasion of the Prince's visit.

As it was the spectators numbered very few, and those who came by air were chiefly the petrol and oil representatives, other trades, the Press and Brooklands Flying School,

on whose goodwill, after all, the success of flying meetings depends. Another whose presence is now becoming familiar at these meetings was Capt. Stack, whose appointment to Smiths' Aircraft Instruments has recently taken him on quite extensive continental tours. He brought with him Maj. A. Vicini, C.V.M., who represents Smiths in Italy, and we may be proud of the information which he gave us—that English instruments are highly esteemed in that country and were fitted to the machines of all those, such as Ferrarin, de Pinedo and del Prete, who achieved notable flights recently.



HALDON: The aerodrome at Little Haldon taken from the air.

In view of the expiration of the Air Ministry agreement on July 31, the subscriptions were raised at the annual general meeting to £6 6s. for flying members and £3 3s. for ordinary members with an entry fee of £2 2s. in each case. Associate membership fees remain unchanged at £1 1s., and wives of members are now eligible for election at half the standard rates. There will be no change at present in flying rates, which remain at £2 per hour for dual instruction and 25s. per hour for solo and passenger flying.

It will be of interest to all pilots, and especially to King's Cup competitors, to know that Woodford Aerodrome is now marked by a white circle with the word "AVRO" in white letters inside the circle. This circle, together with the red tennis court in front of the clubhouse, show up very clearly from the air and will be found of assistance in locating the aerodrome from a distance. The cross and tent marking the turning point will be on the west side of the circle, and close to it.

THE DIFFICULTIES OF AIRCRAFT PARKING.—

The above photograph of Haldon Aerodrome, taken from the air while the Haldon Air Rallye was in progress, shows the aircraft parked in an apparently haphazard manner, and not in the neat lines usually associated with the work of the Automobile Association. Actually, the position of each aircraft shown in the photograph had to be carefully selected by the Air Squad of the A.A., as the ground in many places offered a poor hold for screw pickets. A fresh breeze sprang up on the evening of Saturday, June 28, and the aircraft had to be made doubly secure, as the aerodrome is in a rather exposed position on the top of a hill.

LANCASHIRE AERO CLUB NOTES.—

On Sunday, June 29, no less than eight members of the club passed out for their "A" licences. This is easily a record for the Lancashire Aero Club, and must come very close to being a record for any flying club in this country.

The flying hours during the month of June again averaged nearer 60 than 50 hours per week, despite the fact that only three machines were serviceable during the greater part of the month.

CINQUE PORTS FLYING CLUB.—Flying time for week ending June 28: 54 hr. 10 min. On Sunday of this week Capt. Shadforth, of Rye, was launched solo, and on Friday he was followed by Mr. Nightingale of Mayfield, Sussex. During the week many "A" licence pilots took advantage of Mr. Fox-Barrett's presence to have their flying checked over. The week produced a glut of "A" licences. Mr. P. W. Marriage, of London, gaining his on Sunday; Miss J. Giles, of London, and Mr. A. C. Woods, of Dublin, qualified on Wednesday; Capt. Shadforth got through on Friday; and Mr. d'Ydewalle and a Folkestone member, who prefers to remain anonymous, passed the first half of their tests on Saturday.

On Saturday, June 21, Mr. A. V. C. Douglas, of the Scots Guards, won the Gwynn-Maddocks Cup at Heston from a field of 20 competitors. Mr. Douglas is a pupil of this club, being the third *ab initio* pupil to qualify at Lympne, when he took his "A" licence there in July, 1928. The club heartily congratulates Mr. Douglas on his performance.

The Ashwell-Cooke Cup competition for July will be flown at Lympne, at 3.30, p.m. on Sunday next, July 6.



FOREIGN COMPETITORS: The Breda and Klemm at the flying meeting. (Flight Photo.)

THE CAPE TOWN FLYING CLUB.—We understand that the Cape Town Flying Club is in a very critical condition, and will very likely close down unless help is forthcoming. This condition is partly due to recent misfortunes which have befallen the Club; but, however, it is mainly due to receiving no help from the Government, which is really a surprising thing, as South Africa is about the only country of any considerable size in which the clubs do not receive a Government subsidy. It is, moreover, a most

delightful country to fly in, and it would be very regrettable if the club were to close down, as Cape Town is one of the biggest and most important cities in South Africa.

PLYMOUTH AERO CLUB.—With reference to our list of Light Aeroplane Clubs which appeared on page 719 of FLIGHT, dated June 27, it should be noted that the address is "ROBOROUGH," and not BOBOROUGH.

The address of the Sec. is 35, Connaught Ave., Plymouth.

SERVICE: The new B.P. lorry fitted with fuel pumps so that refuelling machines on the aerodrome becomes a simple matter. (FLIGHT Photo)



ONE OF THE OLDEST FLYING CLUBS.—It is 21 years since the Midland Aero Club was formed in 1909 for furthering the sporting and scientific side of aviation.

In its early stages the club gave a series of lectures on aviation, and also held a display of model aeroplanes at Sutton Coldfield.

The club's first aerodrome was at Dunstall Park, Wolverhampton, and organised the first all-British Flying Meeting, which was held in 1911. It was a most unsuitable ground for flying, but it was the only one available. The meeting was very successful, and most of the leading pioneers of aviation were present, including the late C. S. Rolls, Colonel Cody and Cecil Grace. There was also present Moore Brabazon, the first man in this country to fly, Graham White, Rawlinson, and many others.

In 1912 the club secured the present aerodrome at Castle Bromwich, and held exhibitions of flying by Graham White, also Hucks, who first showed us in Birmingham how to "loop the loop."

One of the members of the club, Mr. E. T. Willows, was a pioneer in small dirigible airships, and he made many flights over the district, flying over the Town Hall on one occasion.

Various displays were organised, and then the Great War came and put an entire stop to activities for a number of years, and the club's aerodrome was taken over by the Government.

Four years ago the club was reorganised and took up the development of flying of light aeroplanes.

During the past four years the members have flown:—Solo flights, 1,300 hrs. and dual flights over 1,700 hrs., making

a total of 3,000 hrs., and as they are mostly short instructional flights, this would mean nearly 12,000 separate flights, and a total distance of over 210,000 miles.

The club has two pilot instructors and four Moth aeroplanes which are in constant use, one of which was presented by Messrs. J. D. and N. B. Graham, of Wolverhampton.

The Government have, during the past, granted a subsidy of £50 for each pilot's certificate obtained, but they are cutting down that subsidy to £10, which will make a very material difference in the club's income.

The club at present has a membership of 350, of whom 142 are flying members, and over 70 members have obtained their pilot's certificates.

There is practically no accommodation for members at Castle Bromwich, and it is proposed to erect a club house at a cost of approximately £400 to celebrate the coming-of-age of the club, and a fund is being raised for the purpose of paying for the proposed club house.

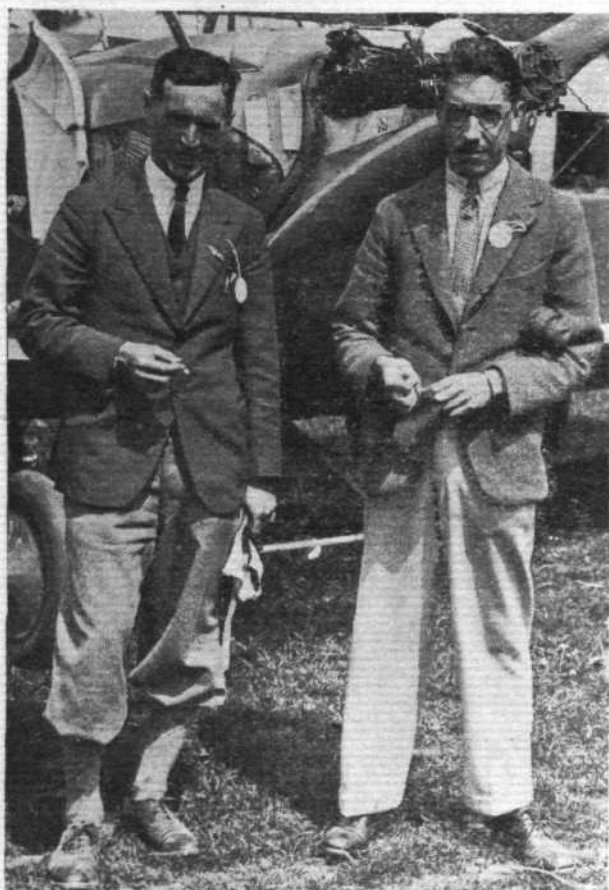
The club has organised two successful air pageants at Castle Bromwich in recent years, and the members have acted as officials from time to time in connection with the King's Cup Race.

Mr. Herbert A. Pepper, the Chairman of the Council, was one of the original founders of the club, and has acted as hon. treasurer for the past 21 years.

Major Gilbert Dennison was also one of the original members and has been hon. secretary except for the first two or three years of the club's existence.



ITALIAN INVERSION: Major de Bernardi by his Caproni (Hermes) which has been specially built for inverted flying demonstrations and was used by him at the recent Rome meeting.



AEROBATS: Mr. Lowdell and Mr. Murray, of Brooklands, whose shows always cause much enthusiasm. (FLIGHT Photo.)

THE BRIGHTON DISPLAY.—On Monday, June 30, Mr. Volk, with the help of the Southern Aircraft Co., organised a display of flying in front of Brighton. This was in connection with the Brighton gala week and proved a very great attraction.

Nothing was arranged in the way of an ordinary flying meeting, as the aerodrome is some little way from the scene of the display, but an excellent programme was carried through and the grand stand, which had been erected over the Aquarium, as well as the whole of the front was one mass of spectators.

The display had as its prologue a law suit in which Mr. Miles, Managing Director of Southern Aircraft, was summoned for low flying over the beach. For once the Magistrate showed a true appreciation of the niceties of dangerous flying, and the case was dismissed.

FLIGHT is probably more opposed to all forms of dangerous flying and unnecessary risks than anyone, but in this particular case there could be no sensible suggestion of dangerous flying. Mr. Miles did not fly over the beach, and throughout the time he was flying he was careful to always be in a position so that had his engine cut out he would have been able to turn away from the beach and

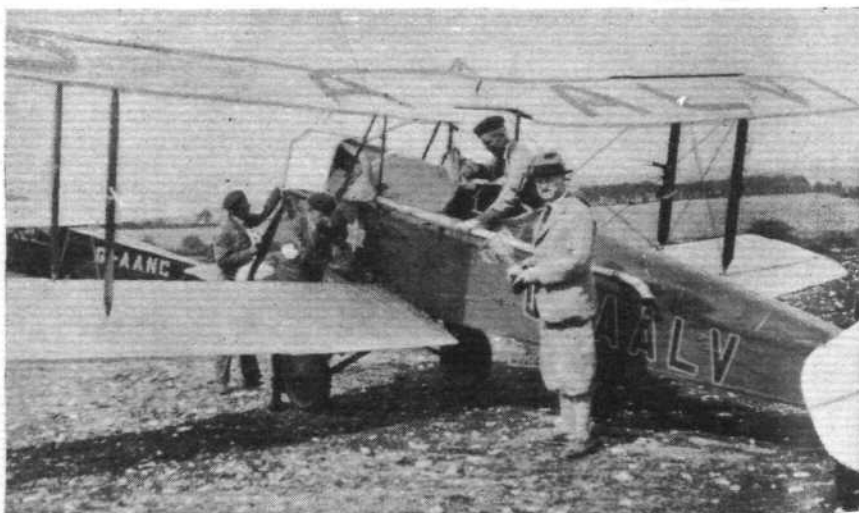


ROYAL TRANSPORT: The Prince of Wales's Wapiti and Escort at Ipswich (FLIGHT Photo.)

pancake the machine into the water with no danger to anyone else, and only very small danger to himself. Some papers have taken this case as a peg upon which to hang a tirade against what they are pleased to call "low-swooping aeroplanes over the beaches where tired and harassed business folk go to rest and recuperate"—no doubt the writers of such articles are deaf and blind, hence their reason for thinking such beaches as those at Margate and Brighton are oases of peace and quietness. But to be serious, the point is that Mr. Miles was flying over the ground to be covered for this display with the full cognisance of the Brighton police, and it was only the demand of a lady who knew nothing of the circumstances which led to his being summoned. However, he was exonerated, and the subsequent display went off with great success.

Three Klemm monoplanes gave an exhibition of stalled flight and slow flying. Flight-Lieut. Schofield inverted a Moth and did an inverted falling leaf, spin, etc.

After this Mr. Miles threw one of the latest Martlets about, and then, as a contrast, Mr. Dudley Watt wallowed along in his D.W.2, showing that modern machines can be made to fly slowly. Mr. Miles and one of his mechanics—Mason—then gave a wing-walking show—a form of demonstration which we insist is an unnecessary risk. Mr. G. Murray gave an aerobatic display; and finally, Mr. Pashley, that old-timer, who used to fly with his brother at Shoreham before the war, and Mr. Miles, bombed a speed boat from their Avros.



A WINNER: Mr. Downes-Shaw with the cup he won at Haldon. The A.A., as usual, assist in preparing his machine.

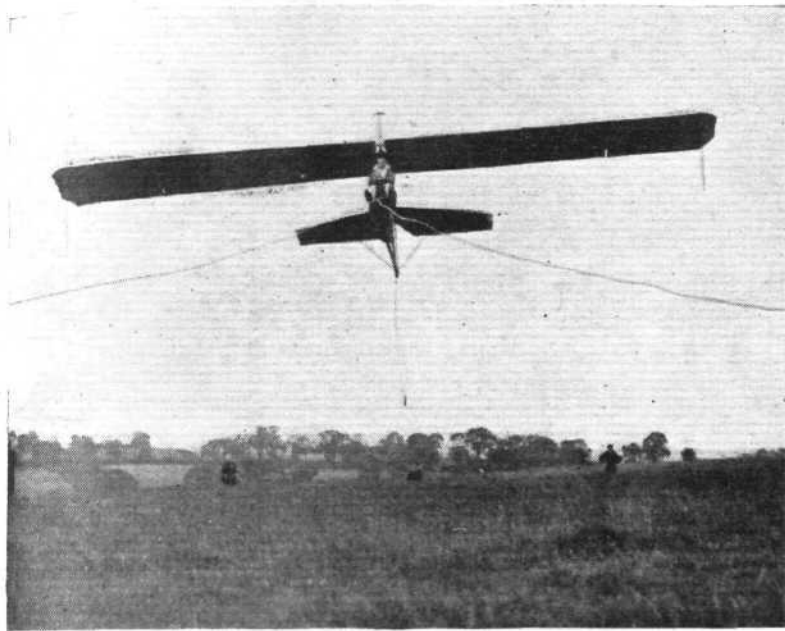
A SHANKLIN MEETING.—Owing to the success of the last Shanklin meeting there will be another meeting on August 17. The hope of the organisers is that visitors

will come down on Saturday and form a week-end party for the meeting. Capt. Ward does all he can for everyone, and those attending should have a thoroughly enjoyable time.



THE KLEMM: Mr. Rogers standing before a Cirrus-Klemm. (FLIGHT Photo.)

GLIDING



WELL AWAY! Mrs. Hull of the Leicestershire Glider Club making a successful flight.

KENT GLIDING CLUB.—A small band of enthusiasts in Kent, under the leadership of Mr. C. H. Lowe Wylde, designed, built and flew successfully the first Primary Training Glider in Great Britain. So great was the interest aroused in this achievement that a club called the Kent Gliding Club was formed immediately. The club have taken their machine on a specially constructed trailer to various parts of the country and at Ivinghoe, Bucks. Mr. Lowe Wylde gained the distinction of earning the first Glider Pilot's "A" Certificate to be awarded in England.

The club has now obtained a permanent training site at Lenham, Kent, and which is only a few hundred yards from the Main London-Folkestone road. A licensed aerodrome adjoins the ground and gives facilities for flying visitors to land. Gliding is carried out here every Sunday, weather permitting.

(N.B.—A wind between S and W is essential.)

A charge of one shilling is made to members for each flight. This charge includes instruction.

The entrance fee to the club is 10s., and the annual subscription for flying members is £1, and to non-flying members 10s. At the moment the club only has one machine, but in accordance with its policy of building its own machines it has a Constructional Section now engaged in building two more, viz., another Zögling and a Sail Plane. This is a branch of the club that is most instructive and interesting, and it is hoped that as many members who can will take an active part in this work. The Kent Gliding Club is affiliated to the British Gliding Association, and this amongst other privileges enables club members to obtain free access to all meetings organised by the British Gliding Association.

Badges may be obtained by club members from the Honorary Secretary at a charge of 2s. 6d. Honorary Secretary: Ronald B. Haynes, 14, King Street, Maidstone.

DORSET GLIDING CLUB.—The only opportunity for West of England people to see exhibitions of soaring flight by Herr Kronfeld, the world-famous Austrian gliding pilot, occurs on Saturday and Sunday, July 5 and 6, when Herr Kronfeld is bringing his "Wien" to Eggardon Hill, Askerswell, Dorset.

Askerswell lies on the main Dorchester-Bridport road, five miles from Bridport. Eggardon Hill, a crescent-shaped eminence, 800 ft. above sea level, has been inspected by Kronfeld, who considers it in every way suitable as a starting point for soaring flights.

The exhibition is one of the last Kronfeld will give before returning to the Continent within the next few weeks.

The Dorset Gliding Club is responsible for the exhibition, having secured Herr Kronfeld's services in order that West of England people may have the opportunity of seeing for themselves the tremendous possibilities in the sport of gliding and soaring flight.

The cost of Herr Kronfeld's services, and indeed of the entire exhibition, is met by Dorset Gliding Club, which has arranged the event (a) to popularise gliding in the West of England, and (b) to increase membership.

For the convenience of visitors the route to Eggardon Hill will be marked out with conspicuous notices along the route from Bridport and Dorchester. Parking facilities for motor-cars and coaches will be provided free of charge, and a suitable field has been secured as an aerodrome. This field will be clearly marked, so that aviators will have no difficulty in landing.

Garage facilities for motorists and hotel accommodation exist on the spot, while would-be-campers-out can hire equipment at Askerswell if not bringing it with them. Good hotels are also within easy reach at Bridport (5 miles), Dorchester (10 miles) and Weymouth (15½ miles).

Exhibitions begin each day at 2.30 p.m.

A charge of 1s. will be made for admission to the Gliding Ground.

THE LEICESTERSHIRE GLIDER CLUB.—The club's first Trainer Type of Glider was taken out on Sunday, June 22, and transported to Billesdon, where the use of an excellent site has been secured for gliding. Here it was assembled and given its first trials. Mr. C. St. Leger Jervis was the first pilot, followed by a famous "Dracer" Muddy Marsh next. The next flight was made by the first lady member of the club, Mrs. H. D. Hull, wife of the Chairman. The club hopes to have another equally successful day at Billesdon next Sunday.

The development of the sport of gliding in Leicestershire promises to be very rapid if one may judge by the amount of public interest shown in the private trials and the number of inquiries which followed the public display of the club's first plane in the city.

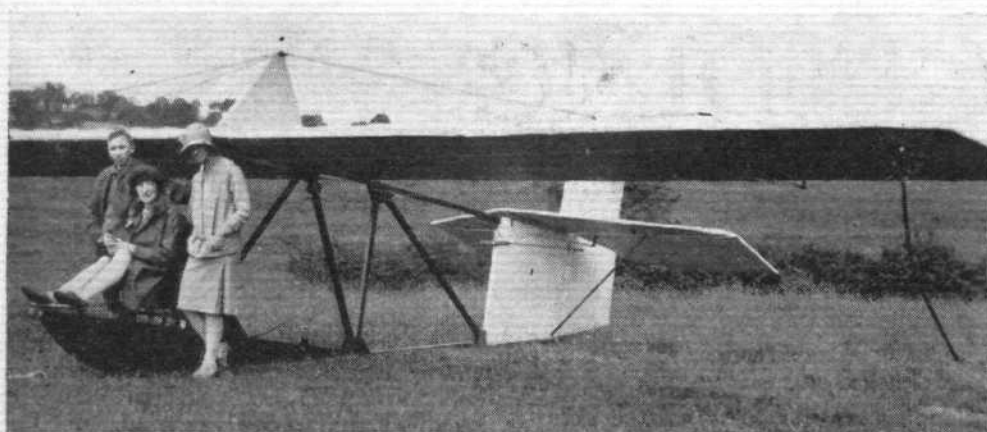
The Leicestershire Glider Club, which has for its President one of the best-known men in the Midlands in sporting circles, Mr. J. H. Hartopp, has been fortunate to secure for their gliding trials the option of a lease of extensive grounds at Billesdon, which is easily the most hilly part of the county, and stands to the west and slightly south of the city about seven miles out.

For the instruction of its members in the use of the Trainer type of machine, the Flight Committee wisely decided to work on an extensive piece of fairly flat ground, but the hangar is at the top of a steep hill, and it is hoped by and by to take off from this hill top, when, given a fair wind, it should be possible to carry out soaring flights with a suitable type of plane. Enthusiasts are applying from all over the county for membership, and it is hoped in the near future to interchange visits with other glider clubs in the Midlands.

LANCASHIRE AERO CLUB and Gliding.—To encourage the formation of the proposed Gliding Club in North Staffordshire, the Lancashire Aero Club hopes to take its Prüfling Glider to a suitable site in the Potteries for practice flights on July 13. On July 19 a six-a-side match will take place against the London Gliding Club, probably at Ivinghoe.

THE "BRITISH SCHOOL OF GLIDING."—The scheme for the promotion of the "British School of Gliding," upon which Mr. Russell Taylor has been engaged, has had to be postponed, at any rate so far as this year is concerned, and accordingly the subscriptions received are being returned.

The following gentlemen, namely, Colonel the Master of Sempill, Mr. C. E. Gordon England, Mr. R. A. Dagnall, and Mr. Howard Flanders, who had agreed to become directors of the school upon its formation, desire to be known that the responsibility for the preliminary work of getting the school into being rested entirely with Mr. Russell Taylor.



FEMININE ENTHUSIASM:
Lady members of the Leicestershire Glider Club with the Club's new glider.

THE LONDON GLIDING CLUB.—We are informed that Mr. Howard Flanders has now resigned his connection with this club, and that Mr. Ashwell-Cooke is acting as Secretary.

HERR KRONFELD'S LECTURE.—Herr Kronfeld will deliver a lecture on Gliding before the R.Ae.S. on July 7, at 7 p.m., in the Library of the Society at 7, Albemarle Street. A limited number of tickets are available for non-members on application to the Secretary of the B.G.A., 44A, Dover Street, W.1.

THE CHANNEL GLIDING CLUB at Folkestone was launched at the week-end with great success, and the membership has almost reached 100. Herr Kronfeld and Herr Magersuppe made some very fine flights, there being a steady westerly breeze, which made the flying-ground on the top of the cliffs a most suitable place for the machines to take off.

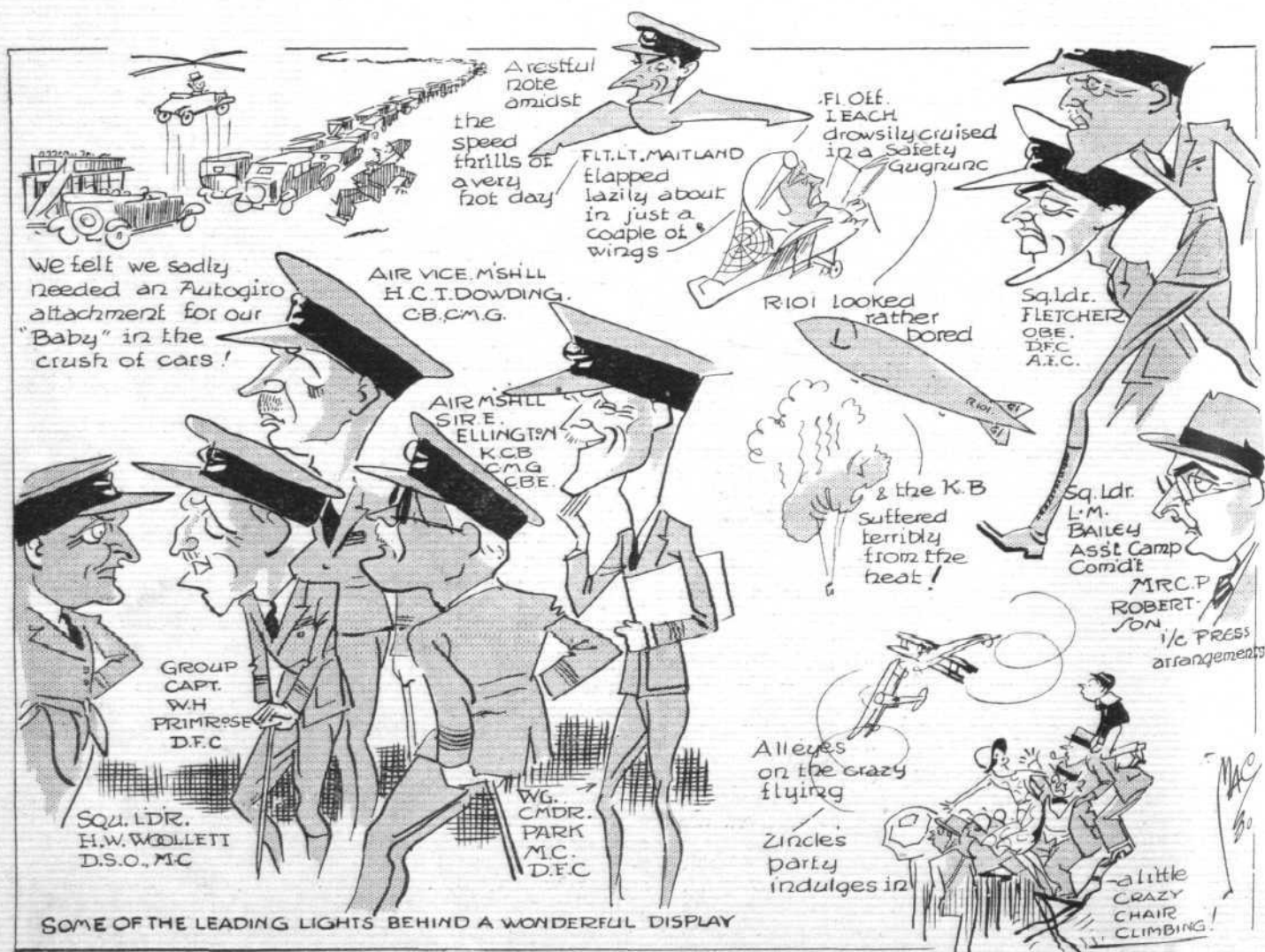
On Saturday, June 28, the breeze was stronger, and Herr Magersuppe made a particularly fine flight of 3 hrs. 15 min., during which he attained a height of over 1,000 ft. He eventually came down in a small recreation ground in a thickly-populated district.

Over 10,000 people watched the display.

A STIRLING GLIDING CLUB.—Mr. C. S. Sharpe is forming a gliding club in Stirling, and a site for gliding has been inspected at Sheriffmuir. This club will be one of the first in Scotland, and their keenness and thoroughness is shown by the fact that it is proposed to construct their own gliders.

THE JOHANNESBURG LIGHT PLANE CLUB seems to be one of the live clubs in South Africa, as they have now started a glider section, and are building a glider which it is proposed to operate in conjunction with a gliding section of the Germiston Light Plane Club. Mr. Vermaak, their ground engineer, is building the glider himself from published drawings.

A BELFAST GLIDING CLUB.—One of the first gliding clubs to be formed in Ireland will be at Belfast, if negotiations which are now in progress are successfully completed.



"Mac's" impressions of the R.A.F. Display.



KINGSFORD-SMITH'S ATLANTIC FLIGHT

Including Some Notes on the Equipment of the "Southern Cross"

MANY attempts at crossing the Atlantic by air have been made during the last ten years: several have succeeded and some have failed. The feat having been achieved, we personally look with disfavour upon a continuance of Atlantic flights, which cannot now serve any useful purpose, and only entail a considerable amount of risk to the flyers concerned, and much worry and anxiety to others.

In Sqdn.-Ldr. Kingsford-Smith's successful crossing (from East to West (which we briefly recorded in our last issue) there are, however, certain outstanding features which—apart from it being a magnificent achievement in itself—class it rather more than a mere stunt.

For one thing, the flight was very carefully organised and thought out, while the machine, land 'plane though it was and not, to our way of thinking, the type of 'bus to be used on long trans-ocean flights, was very efficiently equipped, reducing risk to a minimum. The petrol system, the various instruments, the navigation arrangements, and the wireless installation were all exceptionally well planned.

*Wireless played a very important part—in fact, but for the wireless, as Kingsford-Smith himself admits, they would not have succeeded. From start to finish they were in constant touch with the world, and so to record the progress of the flight we do not think we can do this better than to give the wireless messages sent out, which will be found below. We also follow these with some notes on the equipment, etc., of the *Southern Cross*.

The *Southern Cross*, it will be remembered, left Portmarnock, near Dublin, at 4.30 a.m. on June 24, the intention being to fly direct to New York, but a landing was enforced, owing to fog and compass trouble, at Harbour Grace at 11.57 a.m., June 25; they were thus in the air nearly 31½ hr. The journey to New York was completed June 26, when the *Southern Cross* left Harbour Grace early in the morning. Dense fog banks again hampered them, and progress was slow, and they did not land until late in the evening. However, they received a tremendous welcome, and each broadcast a short speech before being escorted to their hotel.

The Wireless Log

5.11 a.m.—Splendid take off. Flying fine now. We are up 2,000 ft. already. Battling along 105 m.p.h. Will endeavour to be on this wave-length all flight, except when occasionally going over 600 m. in order to get direction from ships.

6.15 a.m.—Now leaving Irish coast.

6.31 a.m.—All O.K., but strong headwinds.

6.35 a.m.—Passed over Costello Island, off Galway.

6.40 a.m.—Headwinds very strong, but conditions good.

6.55 a.m.—Just passed over a number of trawlers. Very cheerful to see other people out in this waste. Everything O.K.—Air speed, 100 m.p.h. Revolutions 1,730 per minute. Altitude, 500 ft. Air temperature, 48°. Estimated ground speed, 75 m.p.h.

7.21 a.m.—Just been having a look at the chart with Paddy. Seems as if everything is breaking our way. Plenty of ships on the course, from which to confirm our position by the direction-finder.

7.25 a.m.—Hope to be working with steamships *Albertic*, *Minnedosa*, and *Melita* around midday. Getting hungry. Guess I'll have a nibble.

8 a.m.—Headwinds of fair strength. 10.15 a.m.—Shooting suns and things. Icy cold outside. Bet Van and Smithy are feeling it. We are all wrapped up like Polar explorers, but it is still pretty nippy.

11 a.m.—53.15 N., 16.7 W. (About 500 miles west of the Irish Coast.) Average ground speed since leaving coast of 82 statute miles per hour. This is satisfactory. All aboard O.K. Are cheerful. Air speed 100 m.p.h.

1.15 p.m.—Slightly overcast. Ocean like a mill pond. Travelling 100 m.p.h. If conditions always like this ocean flying would be easy.

3.3 p.m.—Atmospherics bad. Wind south. Fog. Going up. Pining for a smoke.

3.4 p.m.—Fading badly. Air speed 103 m.p.h.

3.15 and 3.25 p.m.—Flying blind in fog.

4 p.m.—Latitude 51.9; longitude 29 N.N.W. (990 miles off Cape Race)

4.5 p.m.—Direction finding; still in fog.

4.13 p.m.—Still in fog; bumping

4.20 p.m.—Fog all gone.

6 p.m.—Latitude 50.40 N., longitude 34.30 W. (about 750 miles from Cape Race). Speed 80 m.p.h. Everything going fine. Wish we could get out of this beastly fog. Feels as though we are closed in.

7.15 p.m.—Latitude 50.30 N., and longitude 36.00 W. (about 680 miles from Cape Race).

8.30 p.m.—Strong west-south-west headwinds, probably reducing speed considerably. Everything else in order. The revolutions were 1,610; air speed 100 m.p.h.; altitude 250 ft.

9.20 p.m.—Wind west, easing. Still foggy. Expect to be over Cape Race at 1 a.m. tomorrow (Wednesday).

10.30 p.m.—Latitude 49.50 N., longitude 39.10 W., or nearly three-quarters of the way across the Atlantic. Speed, 85 m.p.h.

10.45 p.m.—Head winds have decreased to 10 m.p.h. Everything O.K.

11.30 p.m.—Making excellent progress. Latitude 49.14 N., longitude 40.40 W. (about 450 miles E.N.E. of St. John's).

11.32 p.m.—The whole world is a peculiar blue, and the sun laughing red gases in the great bowl of fog. Almost made the water during fog.

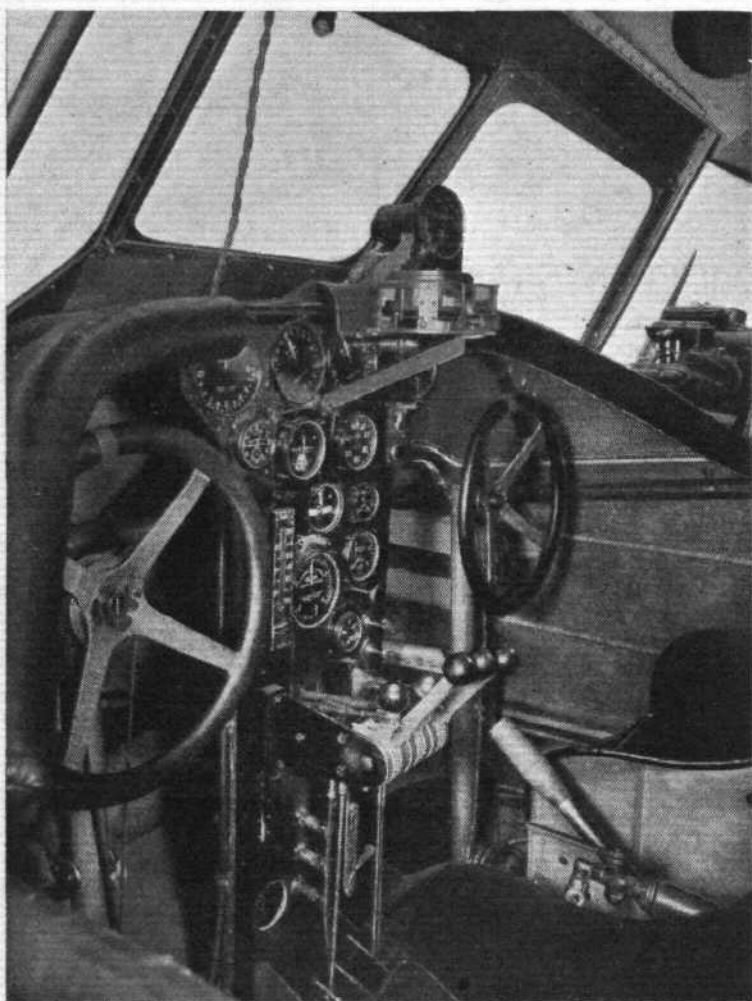
June 25: 12.8 a.m.—Fog, now getting quite dark inside cabin. Cheerful glow of radio valve makes cabin look cosy. To complete the effect I think I will wrap myself around another sandwich. Good-bye.

12.20 a.m.—All O.K. Eating sandwich, drinking coffee.

12.42 a.m.—Will listen for V.C.E. (Cape Race call sign). Signals very strong and now getting data. Outboard motors shrouded in blue haze, and each exhaust port has faint pink flame proceeding from it. Very uncanny. Lettering on starboard wing is embossed in gold as the last rays of sun touch it.



THE CREW OF THE "SOUTHERN CROSS": From left to right—Mr. J. W. Stannage (Wireless); Capt. P. Saul (Navigator); Sq.-Ldr. Kingsford-Smith; Mr. Van Dyk (2nd Pilot). Miss Mary Powell, Kingsford-Smith's fiancée, is on the extreme right.



The Pilots' Cockpit and Instruments.

2.6 a.m.—Position: Latitude 48.12 N.; longitude 45.5 W. Distance to Cape Race 250 miles. Everybody happy; all O.K.
 3.15 a.m.—Can't get into touch with Cape Race wireless station.
 4 a.m.—We are within 100 miles of Cape Race and the big stiff still does not reply.
 4.5 a.m.—Does not look as if we shall get a bearing just when we want it. We should be over Cape Race in another hour.
 4.30 a.m.—Still trying to get bearings. Trying to wake up those guys at Cape Race.
 5.5 a.m.—Sorry, old boy. Been messing about trying to get a bearing. Very dark. Flying blind. Motors ringed with flame. Still 160 miles from Cape Race. Dickens of a struggle to keep awake now. Drone makes me tired. Paint streak of approaching dawn.
 5.18 a.m.—Still trying to get bearings. Very dark flying. Operator having Dickens of a struggle to keep awake.
 6 a.m.—All well. Weather misty with us.
 6.15 a.m.—Passed Cape Race. Course being set westwards towards Nova Scotia.
 9 a.m.—Planning to land at Quidividi Field, near St. John's, or Harbour Grace, Newfoundland.
 9.21 a.m. Position 47.47 N., 49.06 W. (about 751 miles east of Cape Race).
 9.30 a.m. Turning back. Hope to reach Harbour Grace.
 10.43 a.m. Hurray! See land at last.
 10.45 a.m.—Oh boy, it looks good to see our position on the chart again. 90 miles to go to Harbour Grace.
 11.30 a.m.—Perhaps you can do something to guide us. Please tell the aerodrome to send a machine up quickly.

The History of the "Southern Cross" and its Equipment

The *Southern Cross* is a three-engined Fokker aeroplane of the type F.VIIB-3m, equipped with Wright Whirlwind J5 engines, of 225 h.p. each. Strictly speaking, the machine consists of two Fokkers, namely, a Fokker F.VIIA and a F.VIIB-3m. The wing originally belonged to the first three-engined Fokker, to be fitted with the so-called large wing of 728 sq. ft. (67.6 m.²), which was supplied to Sir George Wilkins, the Arctic explorer, in 1925, as also was the F.VIIA, equipped with a 400-h.p. Liberty engine, to which the fuselage of the *Southern Cross* belonged. Both of the explorer's machines were damaged in Alaska, and part of one was used to repair the other.

In 1927 the three-engined aeroplane, which

already had many flying hours to its credit, was sold by Sir George to Kingsford-Smith. The three Wright Whirlwind J5 engines (fitted with Scintilla magnetos), which are now in the machine, were then installed.

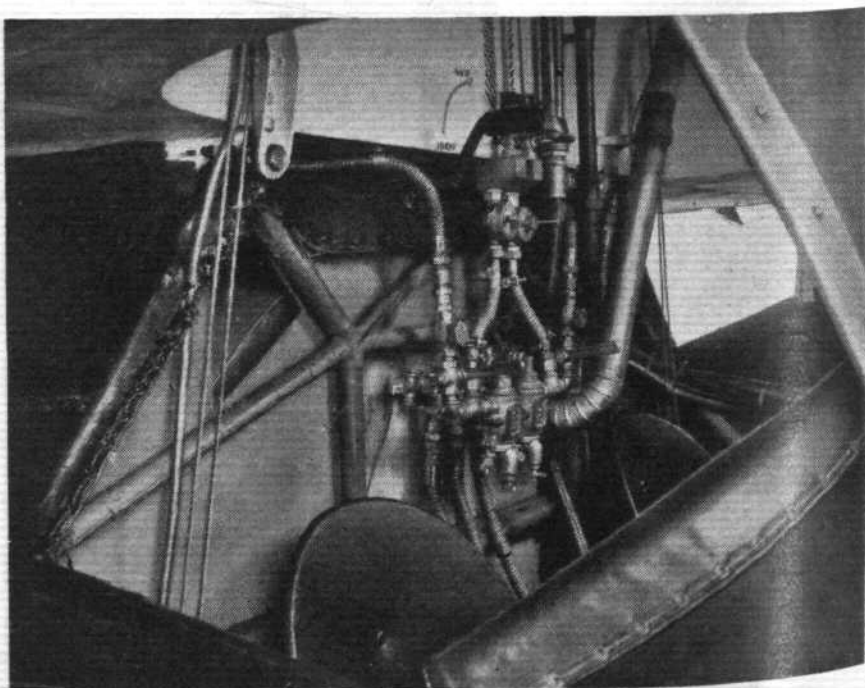
Three attempts were first made to improve on the duration record. Each attempt meant about 50 flying-hours. In 1928 Kingsford-Smith, accompanied by George Pont, succeeded in remaining in the air for 50 hours and 4 minutes. Although this was the first time a three-engined aeroplane had flown so long at a stretch without being refuelled, this feat was not officially regarded as a record, seeing no distinction is made in regard to duration records between single or multiple-engined machines. When taking off for this attempt the machine, which was built for a total weight of 9,000 lb. (4,100 kg.) weighed no less than 15,807 lb. (7,176 kg.), or, in other words, the machine was overloaded to the extent of 75 per cent.

On May 31, 1928, the *Southern Cross* took off from Oakland Field near San Francisco, for the world-famous flight across the Pacific, a flight never accomplished by anyone else before or since. The crossing was made in three stages, viz.: San Francisco-Honolulu, 2,408 miles (3,875 km.) in 27 hr. 27 min.; Honolulu-Suva (Fiji Islands), 3,144 miles (5,060 km.) in 34 hr. 33 min.; and Suva-Brisbane, 1,795 miles (2,888 km.) in 21 hr. 35 min. The total distance of 9,263 miles (11,823 km.) was accordingly covered in 83 hr. 35 min., which means an average speed of 88½ miles (142 km.) per hour. Considering the fact that it was impossible to steer a direct course owing to the bad weather, and the total distance was consequently 10-15 per cent. more, the average speed may be regarded as most favourable. The crew for the Transpacific flight consisted of C. E. Kingsford-Smith, first pilot; C. T. P. Ulm, second pilot; H. Lyon, jun., navigator, and J. Warner, wireless operator.

After this flight, Kingsford-Smith and Ulm, this time accompanied by Litchfield as navigator, and McWilliams as wireless operator, left Melbourne on August 11 and flew non-stop to Perth, a distance of 2,000 miles (3,220 km.), which was covered in 23 hr. 24 min. The return journey to Sydney, 2,500 miles (4,000 km.) was likewise flown non-stop.

Later, with the same crew, the *Southern Cross* flew over the Tasman Sea from Australia to New Zealand, a distance of 1,425 miles (2,290 km.). This was the first aeroplane to fly across this unbroken stretch of water. With the wind in their favour the airmen accomplished the flight in 14 hr., i.e., with an average speed of 102 miles (164 km.). The return journey was completed in 22 hr.

On March 30, 1929, the *Southern Cross* left Sydney with the same crew in an attempt to improve on the record of 15 days for the flight from Australia-England set up by Bert Hinkler.



The fuel distributing system in the pilots' cockpit.

After having covered about 2,240 miles (3,600 km.), the airmen were forced owing to lack of fuel, to make a landing in the bush. It was not until they had spent 12 days of untold privation that they were discovered and rescued. Five days later they returned in stages to Sydney.

On June 25 they again took off from Sydney and arrived in London on July 10. They had flown from Australia (coast) to England in 12 days 23 hours, thereby setting up a new record.

On July 19, 1929, the *Southern Cross* was flown over to the Fokker works at Amsterdam, where it was thoroughly overhauled, and prepared for the Trans-Atlantic flight. Titanine dope was used on the machine for this flight.

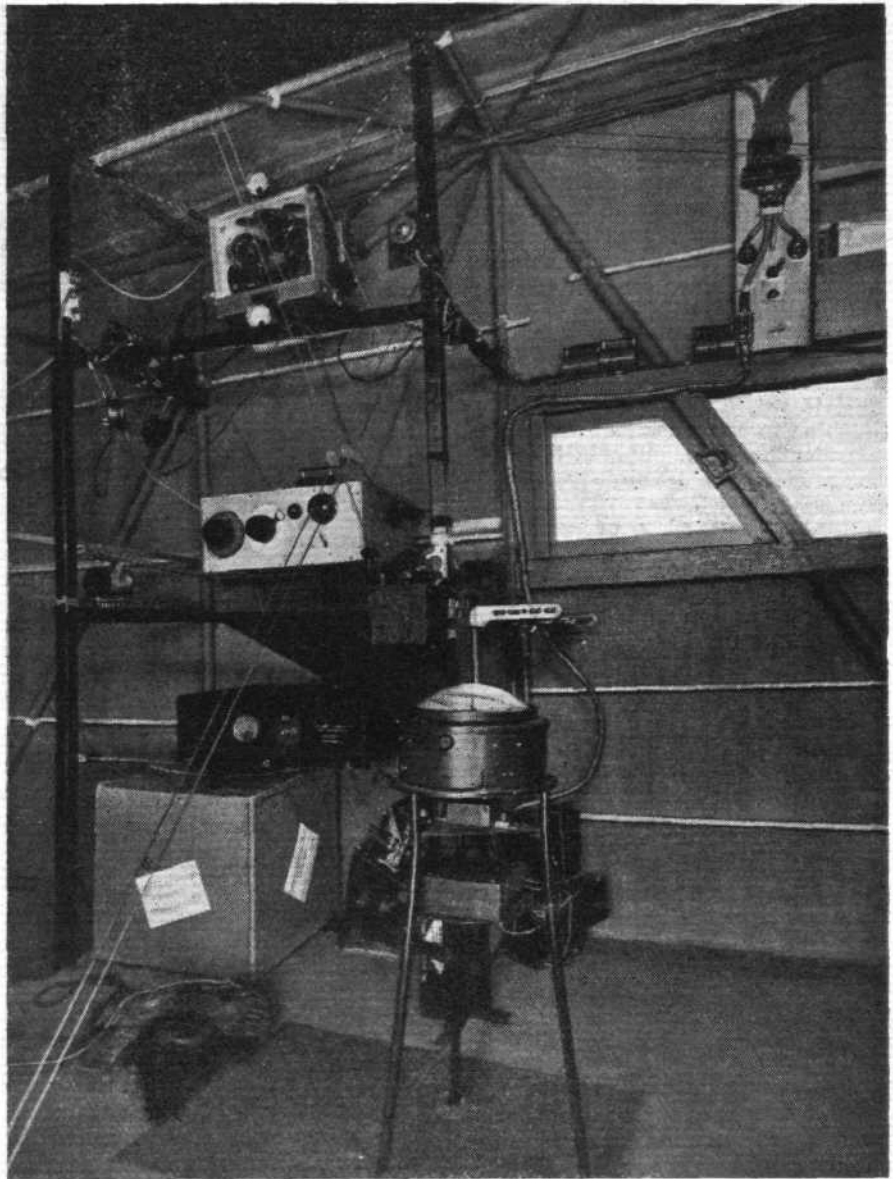
As soon as the aeroplane was ready, Kingsford-Smith, who, with Ulm, had meanwhile founded the Australian National Airways, came to Amsterdam. In the meantime the engines, which had already run for about 600 hours each, were overhauled by "Doc" Maidment, an expert from the Wright works, so that it was possible to commence the series of test flights shortly after Kingsford-Smith's arrival.

Nothing now remained for Kingsford-Smith to do but select a crew and wait for a favourable moment to undertake the "hop" across the Atlantic. For second pilot he chose Van Dyk, a K.L.M. pilot; for navigator, Capt. Saul; and for wireless operator Mr. Stannage, a New Zealander.

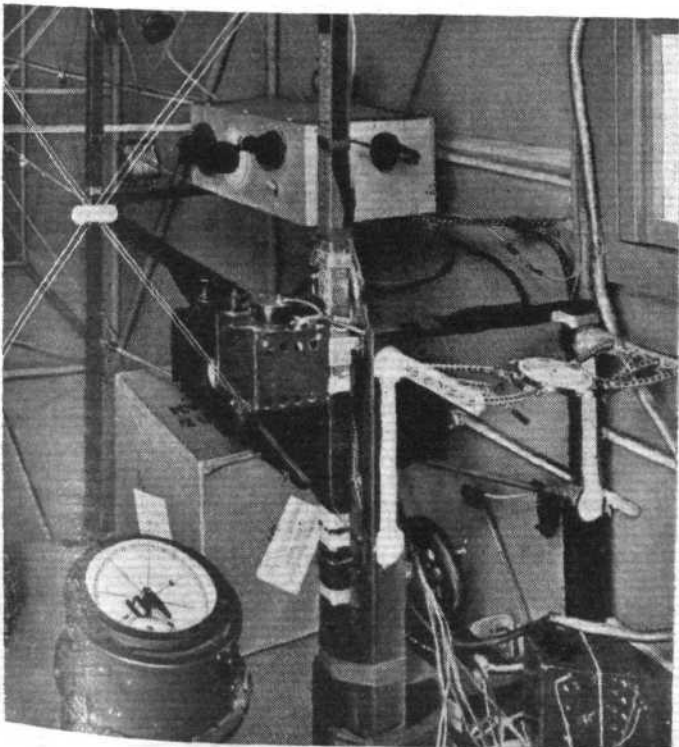
Technical Details

The following are the specifications of the *Southern Cross* as it was when it last left the Fokker works:—Span, 7 ft. 2 in. (21.71 m.); Length, 47 ft. 10 in. (14.60 m.); height, 12 ft. 9 in. (3.90 m.); wing area, 728 sq. ft. (67.6 sq. m.); wheel track, 14 ft. 1 in. (4.30 m.); weight empty, including complete equipment, 6,281 lb. (2,850 kg.); crew (4), 661 lb. (300 kg.); fuel, 7,855 lb. (3,564 kg.); oil, 551 lb. (250 kg.) Total, 15,348 lb. (6,964 kg.).

The wing loading is, therefore, 21 lb./sq. ft. (103 kg./sq. m.) and the power loading 23 lb./h.p. (10.3 kg./h.p.).



The Wireless Equipment in the Navigator's cabin.



Another section of the Navigator's cabin, showing the Longines Chronometer (extreme right).

The fuel is contained in 4 tanks, in the wing, one tank under the pilots' cockpit, and one tank in the fuselage. The four wing tanks and the tank under the cockpit each have a capacity of 83.3 Imp. gallons, but with a pump only 81 Imp. gallons can be drawn from the last-mentioned.

The main tank, in the fuselage, has a capacity of 666 Imperial gallons. The total available quantity is, therefore, 1,080 Imp. gallons. With an average fuel consumption of about 29 Imp. gallons per hour, this quantity accordingly represents a maximum of 37 flying hours.

At a cruising speed of 100 m.p.h. (160 km./hr.), which has been measured over four courses of $3\frac{1}{2}$ miles (6 km.) each, the range of action in a calm amounts to 3,679 miles (5,920 km.). Against a head wind with an average speed of $12\frac{1}{2}$ miles (20 km.) per hour the range of action is, therefore, practically 3,230 miles (5,200 km.).

The distance from Dublin to New York, measured on the Great Circle (the shortest line from one given point on the globe to another) is 3,175 miles (5,108 km.). If an allowance of 10 per cent. is made for deviation from the true course, the range of action of the *Southern Cross* was just sufficient to fly from Dublin to New York.

The fuel tank in the fuselage is fitted with a special dump valve, designed by Mr. Fokker. By means of the valve, which is operated by the second pilot, and which has an opening of 8 in. diameter, the main tank can be emptied in 50 seconds. If, when taking off, the first pilot deems the machine too heavy under the circumstances (unfavourable weather or the bad condition of the aerodrome) to carry itself into the air, he can signal to the second pilot to dump what fuel is necessary to reduce the total weight to a suitable figure, so that the machine can be lightened at instant notice. This safety dump valve may also be used in the event of one of the engines failing when the machine is still too heavily

laden to continue flying on two engines. In such a case fuel is dumped until the desired weight is arrived at, and then the airmen either return to the starting point or fly on to their goal, whichever happens to be easier. If the worst comes to the worst, and the machine is forced to alight on water for some reason or other, the airmen can entirely empty their tank and close the valve. The buoyancy of the machine is then increased by 3,000 litres or three metric tons. Owing to the buoyancy of the wing on top of this, it would be possible for the machine to remain afloat for some considerable time. Should the sea be rough, the possibility is, of course, reduced, but the airmen will always stand a chance provided the seas are not too high.

The oil (Vacuum) is carried in three tanks to the rear of the engines. These tanks have a capacity of 17.6 Imp. gallons each.

The engines are gravity fed from the wing tanks, but the fuel in the main tank and in the reservoir under the cockpit must first be pumped into the wing tanks before it can be used. For this purpose a hand pump is used, the handle, which is installed between the two seats in the cockpit, being operated by the second pilot.

The Instrument Board in the Cockpit

The following instruments (see first illustration on p. 758, from top to bottom) are installed in the cockpit for the use of the pilots. A bank and turn indicator before the second pilot (top right hand). This instrument is specially intended for blind flying, and comprises a speedometer, a gyroscopic bank and turn indicator and a transversal inclinometer.

Below this, in the centre, is an aperiodic compass. Then follow, side by side, the revolution indicators for the three engines, and an altimeter; whilst the next row is made up of a clock, a voltmeter for the earth inductor compass—in order to steer the course set by the navigator, the pilot must see that the needle is exactly central—a speedometer, and a small signalling lamp with press button as a means of communication between the cockpit and the observers' compartment.

Further, there is a gyroscopic bank and turn indicator for the first pilot, and also an oil gauge.

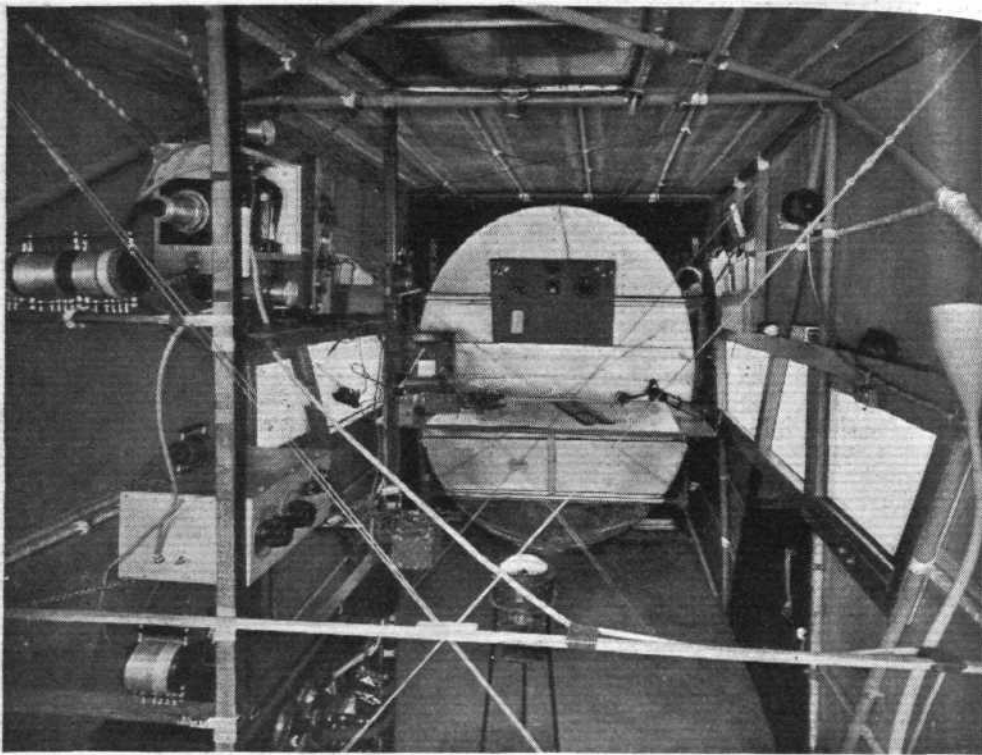
On the left-hand side of the instrument board there is a longitudinal inclinometer (the oblong instrument), and next to this a rate of climb indicator, and a fuel gauge for the reservoir under the cockpit.

Lower down there are three knobs for the priming leads of the engines. The instrument at the bottom of the photo is an oil thermometer. The oil thermometers and gauges for the outboard engines are installed in their respective power eggs. Then follow the handles for gas and altitude gas, and below these the switches for the lighting installation.

The separate bank and turn indicator is actuated by a Venturi tube, the combined flight controller and the speedometers by means of a pitot tube, which is fitted with an electric element connected with the electric mains, and this element is placed under current when the tube becomes affected by snow or ice.

To the rear of the pilots is the fuel distributing system (see second illustration, on p. 758). The gauge glasses for indicating the level of the fuel are mounted on the wing spar. The fairly large sized tube seen in the photo is connected with the main fuel tank, and is intended to let air into this reservoir quickly when the safety dump valve is used. The crank handle immediately under the spar is for adjusting the stabiliser during flight. The arrow "High-Low" shows which direction it must be turned.

On the left-hand side of the photo will be seen a triangular hole through which the top of the main tank is visible. Through this hole the pilots communicate with the other two members of the crew, in the navigators' compartment, by means of a stick with a clip at the end. Written messages



A general view of the Navigator's and Wireless Operator's cabin.

are placed in the clip and passed from one compartment to the other.

The Navigator's Compartment

A general view of the navigator's compartment is shown above. In the forward part is the main tank, on which is mounted a speedometer, a voltmeter for the earth inductor compass to show the navigator whether the pilot is keeping strictly to the course set, and an altimeter. At the corners are small lamps for illuminating the instrument board, in the centre a switch; and, lower down, on the left, a signalling lamp.

Under this instrument board is a collapsible chart table, on which are to be seen a sextant, parallel rulers, and a drift indicator. In the roof of the compartment is a trap-door, which may be slid open when the navigator wishes to make observations with his sextant. He measures the drift of the machine by affixing the drift indicator to a bracket, made for the purpose, on the outside of the fuselage. At the top right-hand side, attached to one of the tubes in the wall of the fuselage, is the course-setting indicator of the earth inductor compass, with which the navigator sets the course which the pilot is to follow.

On the left is installed the complete wireless set. This may, however, be seen to better advantage in the illustration on p. 759. It will be observed that all the wireless instruments are suspended in shock absorber cord. At the top is the Marconi transmitter for wave lengths of 600-800 m. This outfit, which has an energy of 80 watts, is intended for communicating with ships that work on such wave lengths. The installation underneath is the receiving set for all wave-lengths ranging from 20-2,400 m.

The lower box contains a Heinz and Kaufman short-wave transmitter for wave-lengths of 33.1-33.5 m., and has an energy of 50 watts. The box with the spare parts for the wireless installation is on the floor, and next to it will be seen the reel with the short-wave transmitting aerial. The aerial for long wave transmission and reception is on the starboard side, on the floor, opposite the short-wave aerial, but is not visible in the photo. Mounted on the supports of the wireless installation are the aerial switches; the one top left being for long waves, the one on the right for short waves.

On the right, under the receiving set, will be seen the manipulating key, and immediately under this a transformer. The batteries for the receiving set are at the bottom. In the foreground of the photo will be seen the master compass. At the top right-hand side are several switches and a press button for the signalling lamp.

About half way between the cabin and the tail skid hangs the generator of the earth inductor compass, which is driven by a small wind-mill located on the top of the fuselage.

At the bottom right-hand side of the lower illustration on p. 759, is the Longines chronometer, an instrument on which much depends in navigation, and which must consequently keep good time. To overcome the effects of vibration the chronometer is suspended on shock absorber cord.

On June 30 the *Southern Cross* flew from New York to Bolling Field, Washington, the crew later lunching with

President Hoover at the White House. In the evening, after a visit to congress, they returned to New York.

In conclusion, it may be added that Sq. Ldr. Kingsford Smith intends to fly—possibly non-stop—to California, and thus complete a round-the-world flight. After this he proposes to attempt a record solo flight from England to Australia in a light 'plane.

AIRISMS FROM THE FOUR WINDS

England-Australia Flight

MR. E. L. HOOK and Mr. J. Matthews, who set out from Lympne on June 20 in a D.H. "Moth" for Australia—hoping to beat Bert Hinkler's record—have been held up at Allahabad. As reported last week, they reached Cairo on June 23, and proceeded to Gaza next day. They arrived at Basra on June 25, and at Bushire the next day. After a stormy passage down the Persian Gulf, they landed at Karachi in a rain-storm on June 27, having accomplished the journey to India in the same time as Hinkler—eight days. The next stage was to Allahabad, the following day, but after leaving there for Calcutta, on June 29, a minor trouble was detected, and they had to return to Allahabad. They left again on July 1 and reached Calcutta after a flight of 8 hours.

Atlantic Flight in Formation

A NEW form of Atlantic flight is being planned by the Italian Air Force. Twelve Savoia S.55 seaplanes are being prepared at Ostia for a flight in formation, under the personal leadership of Gen. Balbo, across the Atlantic to Brazil—if possible, non-stop!

New York-Bermuda-New York Non-Stop

A MAGNIFICENT non-stop flight of about 1,560 miles was accomplished on June 29 by Mr. Roger Q. Williams, when he flew in the Bellanca monoplane (Wright "Whirlwind") *Miss Columbia*—on which Mr. Chamberlin and Mr. Levine flew from New York to Germany in 1927—from New York to Bermuda and back again. The flight took 17 hours, and Williams was accompanied by Mr. Errol Boyd, a Canadian (second pilot), and Lieut. H. P. Connor (navigator).

The Michelin Cup

M. MICHEL DETROYAT won the Michelin Cup, for a flight round France, for the second year in succession on June 30. He flew a Morane-Saulnier 152 monoplane (230 Salmson), and the circuit of 1,738 miles (Le Bourget-Rheims-Nancy-Strasbourg-Dijon-Clermont Ferrand-Lyons-Montpellier-Perpignan-Toulouse-Pau-Bordeaux-Tours-Le Bourget) was covered at an average speed of a little over 124 m.p.h.

New Endurance Record

TWO American pilots, Kenneth and John Hunter (they are brothers) ascended from Sky Harbour airport, Chicago, on June 12 in a Stinson Detroiter cabin monoplane *City of Chicago*, and flying to and fro above the airport have been flying strong up to the time of writing. By June 29 they had been in the air 421 hrs., and had thus beaten the previous endurance record (with refuelling) of 420 hrs. 21 mins. On the afternoon of July 1 they had completed 478 hrs., and were hoping to keep going until to-day (July 4). Food and fuel supplies have been conveyed to them twice daily by two elder brothers, Albert and Walter Hunter, from another aeroplane.

Fire-Fighting Moths

THE intense fire hazard being experienced in the forests of Northern Ontario this season is keeping the pilots of the Ontario Provincial Air Service busy. During the week of June 1 to 7 inclusive, the aircraft of the Government Service set a new mark for intensive flying and the Moth seaplanes used for detection work were flying practically from dawn to dusk each day. The most outstanding achievement was that of Pilot George Delahaye, operating from the base at Twin Lakes, on Gipsy Moth CF-APB. During the seven days he flew no less than 61 hr. 15 min., his daily times being: 7 hr. 15 min., 7 hr. 30 min., 6 hr. 40 min., 7 hr. 15 min., 9 hr. 5 min., 13 hr. 10 min., 10 hr. 20 min. Some idea of the stupendous nature of this week's flying may be gained by converting the time flown into mileage. Taking the average speed at which these fire patrols are made at the conservative speed of 75 m.p.h., the distance covered amounts to 4,600 miles. All the flying was carried out over the forests and

lakes of Northern Ontario, but had the flight been made in a direct line it would be equivalent to flying one and a half times across Canada from the most easterly point to the West coast of Vancouver Island or a return trip from Toronto to Victoria. Although normally the Moth seaplanes are only used for detection work, during this particularly hazardous period they were pressed into service for transportation, carrying fire fighters from the base to strategic points, to deal with the raging fires. Delahaye's time for the week sets a new record for the service, and he was closely followed by Pilot J. Horne, who operated Moth CF-AOZ from Orient Bay, with a total of 57 hr. 20 min. during the same period, while nine other Moths operating from Sudbury, Fort Francis, Kenora, Caribou Lake, Sault Ste.-Marie, Shebandowan Lake, Sioux Look-out and Oba Lake, compiled a total of 310 hours' flying during the same week.

The Graf Zeppelin

THE German airship *Graf Zeppelin* recently paid a visit of several days to Berlin in honour of the World Power Conference. A rather amusing incident occurred on June 22, when the airship made a trip to Hamburg with passengers. Capt. Lehmann, who was in command, and several passengers landed, and while the airship was riding at its moorings a strong wind sprang up which, together with the great heat, caused the airship to rise, lifting from the ground two policemen members of the holding-down party. They were pulled into the car, while the crew cast off, and, after making several attempts to land but without success, a course was set for Berlin. Capt. Lehmann was unable to rejoin his ship, and he was forced to hurry after her to Berlin by train! It is reported from Berlin that plans are in hand for the *Graf Zeppelin* to pay a visit to England, Scotland, and Ireland at the end of this month.

R 100 and R 101

ON June 27, the day of the dress rehearsal for the R.A.F. display, the airship R 101 made a test flight over London and the neighbourhood which lasted 12½ hours. She left the mooring tower at 8.30 a.m., and moored there again at 9 p.m. On Saturday, June 28, she was again out for several hours and duly made her appearance at the Display. During this flight weather charts were successfully transmitted by wireless from Cardington to the airship. On Sunday, June 29, R 101 was moved back from the tower to her shed. Certain damage to her fabric will be repaired, and then the operation of lengthening her will be taken in hand. It has not yet been found possible to make the engines reverse, and the forward port engine is still kept in reserve for driving the ship astern.

R 100 is now ready to leave her shed, and will do so shortly. The acutely pointed tail-piece which collapsed on her last long flight has not been replaced, but the tail has been rounded off. Intermediate girders have been put in place to support the fabric where it collapsed from the slipstream of the engines. It is hoped that the airship will fly to Montreal about the end of this month.

Another Solo Atlantic Attempt

Sq.-LDR. C. F. WYNNE EYTON, an ex-R.A.F. officer, is now at St. John's, Newfoundland, awaiting a favourable opportunity to fly across the Atlantic to Baldonnel, Ireland, thence to Stag Lane, in a De Havilland Puss-Moth ("Gipsy" engine). Petrol tanks having a capacity of 150 gall. have been fitted—40 gall. in the wings, and two tanks of 35 and 75 gall. in the fuselage.

Miss Amy Johnson

MISS AMY JOHNSON celebrated her 27th birthday at Adelaide on July 1 and received many messages of congratulation. Her D.H. Moth *Jason's Quest*, was shipped at Melbourne the same day aboard the s.s. *Naldera*, which she will join at Fremantle on July 7 en route for home.

CROYDON NOTES

THERE is little inspiration now in watching the comings and goings of the air liners. Hilaire Belloc once wrote an essay "On Nothing." Had I his skill I might emulate him with another "On Nothing of Importance." But these big machines are dull in their regularity, and it would be much easier to find things to say of the Croydon-Waddon tramcars. At least they lack that same virtue of regularity!

The prediction in last week's "Croydon Notes" that business men would soon find the value of the new inland air service has been amply borne out already. Amongst last Wednesday's passengers from Paris were two bound for Manchester. Leaving Paris at 2.30 p.m., they arrived at their destination at 7.30 p.m., having broken their journey at Croydon for tea, over which they spent half an hour. Their actual flying time was thus only 4½ hours. What they must have felt about Manchester, with Paris memories so fresh, is not known.

We of Croydon are most whole-hearted in our congratulations to Kingsford Smith, Vandyk, Saul and Stannage. We have felt a very personal interest in their great success since they left us here so recently. It was a great battle that they fought against such overwhelming difficulties, and we are thankful for their wireless equipment. Without it not even the stoutest of heroes could have pulled through those terrific fog banks of Newfoundland.

At this time our minds fly back to the pioneer efforts of dear old Hawker and Grieve, Alcock and Brown. Much discussion has been raised as to which was the greatest achievement of all. But we must hand it to Sir John Alcock—or "Plain Jack" as he preferred to be called—and that equally retiring gentleman, Sir Arthur Whitten Brown, for what they did on their old war-time Vimy. They were nearly forgotten when Lindberg made his wonderful solo flight almost ten years later. The most notable arrival during the week was Mohan Singh, who returned by the Indian air mail. He was chaired in the Customs area and carried in with cheers and clapping.

We are all looking forward to the coming of the Handley Page 40-seaters. Rumours reach us that the first of them has already flown. May it pass through its tests quickly because Imperial Airways have work for it to do. It is good that the earliest of English aircraft firms should still have the most modern of ideas and that in the year of its 21st birthday Handley Page, Ltd., should so surpass itself.

The most noticeable event of the past week has been the trial of the latest model from the Desoutter factory. It is long and slim and sleek. Though I cannot speak yet of its speed, there are no doubts about its handling qualities.

As a rocket, the Desoutter, Mark II, is terrific and topped a thousand feet in its almost vertical zooms. The view from inside is as nearly perfect as mere structure will allow and for comfort its upholstery is excellent. One spectator with an American accent said: "In its accommodation this Desoutter certainly is the Companion Ship."

Speaking of the Desoutter makes me think that Croydon soon attracts all that is newest and best in aeroplanes. Proudly are they brought out and proudly displayed there. And this is well, for is not Croydon the focus of civil aviation and are not its fraternity the elders of the movement? Whenever a new machine appears one almost hears its demonstrator appealing "Look what I've done, Daddy." Thus it was the Hendy 302 came amongst us last Wednesday. This low wing two-seater monoplane with a cockpit lid looks very fast and is well finished. Capt. Percival emerged from it on landing, and after tea and talk with the Cirrus engine people let himself into its body again and shot off back towards Shoreham.

British eyes will find it disturbing to see the number of foreign-built aircraft appearing on English airways and run by Englishmen for commerce. But what British machine is there comparable with the six-seater Junkers? It may inspire our manufacturers to build something as good and to market it as vigorously at home and abroad. I hate to think of what would be the state of our aircraft trade today if it had worked under the same disabilities as did the Germans for so many years after the war. Be that as it may, Walcott Air Lines appear to be doing very well with their two Junkers on private hire work. And until it was retired to its shed for annual overhaul, Col. Henderson's Junkers was seething with joy riders. Whatever be the rights and wrongs of doing business in an English-engined Junkers or a French-engined Avro 504, the former is undoubtedly giving the general public a better idea of what it really feels like to travel in comfort by air.

Though spare parts may still possibly be cheap enough to make the Avro 504 a better paying proposition, its day is ending. But there are now consolations for the joy-riding firms. The last year has brought out new cabin monoplanes, which, though costing more initially, will certainly be cheaper in fuel and cost practically nothing to maintain.

The brighter aircraft movement is spreading. At Hendon on Saturday we saw the latest efforts of the R.A.F. in providing its single-seater fighters with Fair Isle jumpers. In the meantime the above-mentioned Junkers is being given a fit of the sky-blues by order of Col. Henderson.

The traffic for the week was good, 1,463 passengers and 68 tons of freight being carried.

Addington Aerodrome

THE Ministry of Health and the Air Ministry have granted Henlys (1928) Limited, on appeal, permission to build an aerodrome at Addington, with clubhouse, hangars, and other facilities for private owners. It will be remembered that the Croydon Borough Council refused to sanction the opening. In a letter to the Council, the Health Ministry states:—"It is no more practicable to prevent the establishment of aerodromes, where there is a sufficient demand for them, than it was formerly to prevent the construction of railways, or than it is proper to stop the erection of garages."

Help the Prince of Wales Fund

In connection with their £2,000 Cash Prize Competition, the proprietors of "BP" petrol have undertaken to contribute to the Prince of Wales's Personal Fund, for the charitable work of the British Legion, 3d. for every entry coupon sent in. Full particulars of the competition and free entry form may be obtained from any "BP" petrol dealer.

Film Lecture on Civil Aviation

On July 11, Aero Hire, Ltd., are holding a film lecture on "Civil Aviation" at the Temperance Hall, Temple Street, Birmingham, by the Hon. Lady Bailey, D.B.E., and Capt. C. A. Barnard, of Imperial Airways, Ltd. Mr. P. J. Hannon, M.P., will preside, and doors will open at 7.30 p.m. (commence 8 p.m.). Tickets 1s. 6d. and 2s. 6d. each.

Dinner-Dance after the King's Cup Air Race

A SPECIAL dinner and dance will be held on the night of July 5, after the King's Cup Air Race, for members of the Hanworth Club and their friends. A professional band is being engaged, and there will be a programme of music from 7.30 p.m., continuing until 9 p.m. during dinner. Dancing will then take place in the ballroom from 9 p.m.

until midnight. Tickets for the dance, 5s.; tickets for the dinner and dance, 7s. 6d. Application for tickets should be made to the Club secretary.

Not Oil Trouble

In the caption to the photographs of the Bulte training machine published on p. 678 of our June 27 issue it was stated that oil trouble necessitated a landing on the Hurlingham Polo Ground. Actually what happened was that, owing to the prolongation of the flight from Belgium, due to bad weather conditions, the oil supply was exhausted. While the oil lasted there was no trouble of any kind.

Under or Over the Channel?

THE Channel Tunnel scheme was the subject of another debate in the House of Commons on Monday, June 30. Many arguments were advanced on both sides, but prominent among them was a disinclination to set up a rival to air transport, or to spend money on a project which would probably be ruined by the popularity of air transport. The Prime Minister had no doubt that there were a great many people who would prefer the Channel to the tunnel, and a great many—he hoped a growing number—who would prefer the air to a hole 20 odd miles long dug under the Channel. Sir Samuel Hoare evoked both cheers and laughter by saying that they were being asked to burrow under the ground like the mole rather than to fly in the air like the bird. He had often said, he added, that the coming of the aeroplane meant that this country had no longer its inviolate isolation. Machines could fly from the Continent to London in a comparatively few minutes, and it was for the House to consider whether these very serious facts should or should not alter the view previously held about the Tunnel. The scheme was defeated by 179 votes to 172.

THE ROYAL AIR FORCE

HALF YEARLY PROMOTIONS

THE Air Ministry announces :—

The undermentioned promotions are made with effect from July 1, 1930 :—

General Duties Branch

Wing Commanders to be Group Captains : Thomas Gerard Hetherington, C.B.E.; Alan Howard Jackson; Owen Tudor Boyd, O.B.E., M.C., A.F.C.

Squadron Leaders to be Wing Commanders : Reginald Lennox George Marix, D.S.O.; Charles Gilbert Tucker; Eric John Hodsoll; Edward James Poynter Burling, D.S.C., D.F.C., A.F.C.

Flight-Lieutenant to be Squadron Leader : Arnold Samuel Thompson.

Flying Officers to be Flight-Lieutenants : Basil Henry Godfrey; Herbert George Cook, D.S.M.; Stephen Horatio Reynolds; Albert Edward Thompson; John William Hutchins; Graham Nelson Coward; William Smith; Patrick Joseph Hayes, M.B.E., A.F.C.; Clifford William Booth, M.B.E.; Arthur John Brister; George Lansdowne, D.F.C.; Alexander Lees; William Dickson, D.S.M.; John Turner; John Willie Rose, D.S.M.; Miles Cursham (Lieut., R.N.); George Robert May Robertson (Lieut. R.N.); Frank Michael Rokeby Stephenson (Lieut. R.N.).

Supplementary List

Flying Officer to be Flight Lieutenant : Royle Frederick John Strange.

Stores Branch

Wing Commander to be Group Captain : Francis Cartwright Williams, O.B.E.

Squadron Leaders to be Wing Commanders : Walter Frank Bryant; Basil Winstanley Michael Williams.

Flight-Lieutenants to be Squadron Leaders : Harry Leonard Woolveridge; Arthur Elias Sutton-Jones; Patrick John Murphy; John Henry Dale.

Flying Officers to be Flight-Lieutenants : Edgar Valetta Bashford; John McCarthy; Cyril Littlejohn, M.M.

Accountant Branch

Flight-Lieutenants to be Squadron Leaders : Harry George Bushell; Geoffrey Noel Simon.

Flying Officers to be Flight-Lieutenants : John Murray Hopkins; Cecil Ernest Aston.

Medical Branch

Group Captain to be Air Commodore : Hardy Vesey Wells, C.B.E., M.R.C.S., L.R.C.P., K.H.P.

Wing Commander to be Group Captain : Henry Wakeman Scott, M.B., B.Ch., M.R.C.S., L.R.C.P.

Squadron Leaders to be Wing Commanders : Robert Sydney Overton, M.R.C.S., L.R.C.P.; D'Arcy Power, M.C., M.R.C.S., L.R.C.P.

Flight-Lieutenant to be Honorary Squadron Leader : William Stewart Stalker, M.D., Ch.B., D.P.H.

Princess Mary's Royal Air Force Nursing Service

Senior Sister to be Acting Matron : Miss Winifred Maud Coulthurst.

Sister (Acting Senior Sister) to be Senior Sister : Miss Margaret Watt Walker.

Sisters to be Acting Senior Sisters : Miss Nellie Gertrude Rees; Miss Catherine Walker.

Accountant Branch

The follg. Pilot Officers on probation are confirmed in rank and promoted to rank of Flying Officer (June 3) :—C. E. Hunter, F. W. Judge, E. A. Biddle, C. F. G. Rogers, K. Fraser.

RESERVE OF AIR FORCE OFFICERS

General Duties Branch

Flying Officer C. E. B. Winch is transferred from Class C to Class A (April 30). The follg. Flying Officers relinquish their commns. on completion of service (June 10) :—B. R. C. Coope, A. Thomson.

Medical Branch

D. S. Buchanan is granted a commn. in Special Reserve as Flying Officer (Feb. 12); Flight-Lt. G. R. McDowell, M.B., is transferred from Class D (ii) to Class D (i) (Jan. 29).

London Gazette, June 24, 1930

General Duties Branch

The follg. Pilot Officers on probation are confirmed in rank :—R. E. H. Peaton, G. H. A. Blackwood, R. A. Davies, T. W. Hoyle, G. P. Longfield; G. P. Mervin, W. M. Rankin (March 17); A. C. Watson (June 5). The follg. Pilot Officers are promoted to rank of Flying Officer :—H. C. Friday (April 8); A. G. M. Cary, H. L. McCulloch, R. M. Messiter, C. Sarsfield-Sampson (May 2); E. C. Hudleston (June 15).

Flying Officer A. M. Watts-Read takes rank and precedence as if his appointment as Flying Officer bore date Dec. 29, 1928. Reduction takes effect from May 9. The follg. are placed on half-pay list, scale A :—Wing Commander D. A. Oliver, D.S.O., O.B.E. (June 22); Flight-Lt. K. L. Harris (June 17). *Flying Officer A. W. Whitta* is transferred to Reserve, Class A (June 11).

IN PARLIAMENT

R.A.F. and Parachutes

Mr. DAY, on June 25, asked the Under-Secretary of State for Air whether the whole of the machines of the Royal Air Force have provided for them a parachute for every seat?

Mr. Montague: Parachutes have been provided on a scale sufficient to equip every pilot and member of the crews of all aircraft. As has been previously stated, there have been difficulties in the carriage or use of parachutes with certain types of aircraft, but these difficulties are in process of being surmounted. Quick release gear experiments have been developed. Great progress has been made.

Airship R 100

Mr. CHARLES WILLIAMS (for Mr. D. G. SOMERVILLE), asked for the cost of repairing R 100 after her recent flight; what was the exact nature of the damage sustained; what are the plans for her Canadian visit; what is the annual upkeep of an airship; and how much of the total cost is written off annually for depreciation?

Mr. Montague: The answer to the first part of the question is, exclusive of overhead charges, £675, of which £490 has been spent or incurred to date. As regards the second part, I would refer the hon. member to my reply to him on May 28. As regards the third part, the repairs are due for completion by the end of this month, but, at the request of the Canadian authorities, the flight to Canada is being postponed until after the close of the Canadian elections on July 28. The airship will probably stay some 14 days in Canada; the question of flights from Montreal will be settled between the Canadian authorities and the Director of Airship Development after her arrival. With regard to the two last parts of the question, one of the objects of the present scheme of development is to obtain information as to the normal cost of maintenance and length of life of airships of this type; it is, however, less than nine months since R 100 and R 101 started their trials and further experience will be necessary before any reliable figures can be given.

Air Mail Service, Karachi and Bombay

MAJ. GRAHAM POLE, on June 30, asked the Secretary of State for India when it is expected that the work on the Juhu landing ground near Bombay will have advanced far enough to make possible the establishment of a regular air-mail service between Karachi and Bombay?

Mr. Benn: The latest information I have received is that the landing ground is expected to be fit for regular use throughout the year in 1932. It is at present fit during the dry season only.

R.A.E.S. AND INST.AE.E.

Official Notice

THE Council of the Royal Aeronautical Society, at their meeting on June 24, unanimously elected Mr. C. R. Fairey, M.B.E., F.R.Ae.S., as President designate. Mr. Fairey will assume office at the end of September, 1930, when the Presidency is vacated by the Master of Sempill.

The Master of Sempill was elected Chairman of the Royal Aeronautical Society in June, 1926, and took office in October, 1926. In June, 1927, he was re-elected for the year 1927-8. Towards the end of 1927, arrangements were made whereby the Institution of Aeronautical Engineers became incorporated with the Royal Aeronautical Society, and in January, 1928, the Master of Sempill was elected to serve as the first President of the Society under the new rules that had been brought into force to deal with the various questions arising out of the amalgamation. The new rules, amongst other things, abolished the office of Chairman, and considerably altered the duties of the President, bringing them into line with those of other scientific and technical institutions.

The Master of Sempill filled the office of President until the Presidential elections took place in June, 1928, when he was re-elected President for the period 1928-9, and in June, 1929, he was again elected for the period 1929-30.

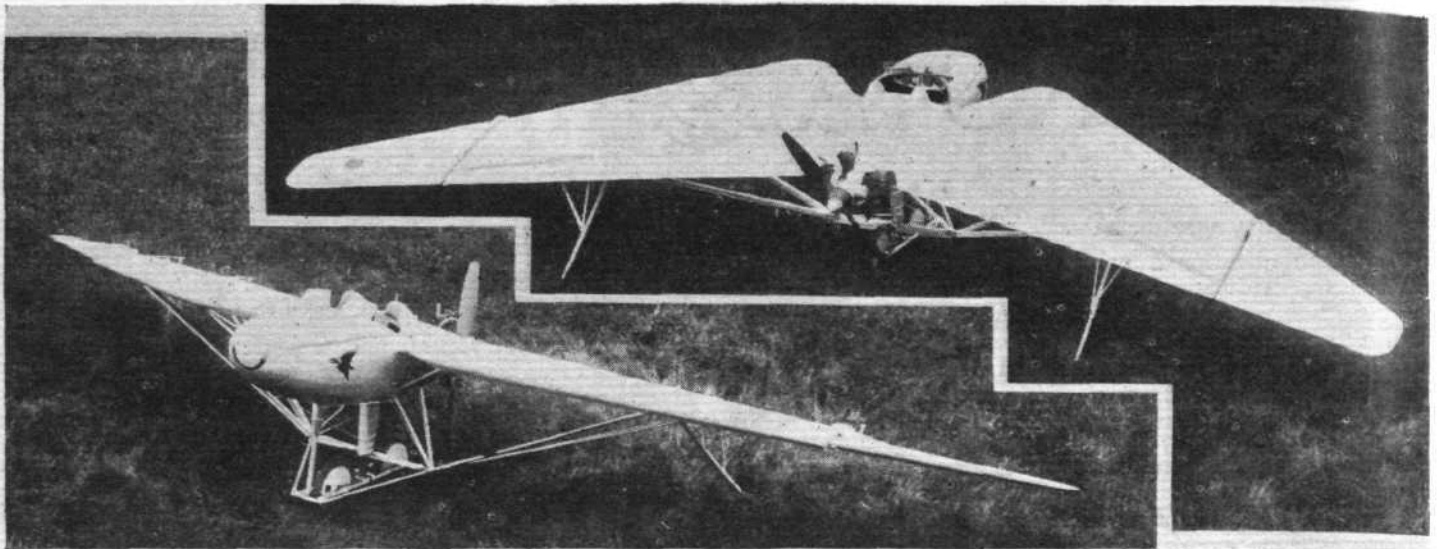
The Master of Sempill, having served for the maximum period of time that is allowed by the rules, is not eligible for re-election.

The office of president has existed since the formation of the society 65 years ago, but up to 1928, the bulk of the duties of the Society had been fulfilled by the Chairman.

The previous presidents were :—

- 1866-1895—His Grace the Duke of Argyll, K.T.
- 1896-1899—In abeyance.
- 1900-1907—Major B. F. S. Baden-Powell, F.R.A.S., F.R.Met.Soc.
- 1908-1911—E. P. Frost, Esq.
- 1912-1918—In abeyance.
- 1919-1925—The Rt. Hon. The Lord Weir of Eastwood, P.C.
- 1926-1927—Air Vice-Marshal Sir W. Sefton Branceger, K.C.B., A.F.C., F.R.Ae.S.

At the same meeting, the elections for vice-presidents were dealt with. The three existing vice-presidents were re-elected for 1930-31—Air Vice-Marshal Sir Vyell Vyvyan, K.C.B., D.S.O., Lieut.-Colonel J. T. C. Moore-Brabazon, M.C., F.R.Ae.S., M.I.Ae.E., and Mr. H. E. Wimperis, C.B.E., F.R.Ae.S. (Director of Scientific Research), Prof. L. Bairstow, C.B.E., F.R.S., F.R.Ae.S. (Zaharoff Professor of Aviation, University of London and Director of School of Aviation, Imperial College of Science and Technology) was elected an additional Vice-President for the same period.



THE LATEST "PTERODACTYL": This is the machine which it had been intended to show at the R.A.F. Display. It differs from that shown in the official Display programme in that the wheels are in tandem. The engine is an Armstrong Siddeley "Genet."

The R.A.F. Display (Concluded from page 750.)

service and civil, and the civil side was represented by a de Havilland Puss Moth and a Saunders-Roe Cutty Sark.

With so many machines in the air together, it was impossible to watch them all, and next year it might be better, if the time can be spared, to allow each type three or four minutes to do its little "piece" by itself.

The Aerial Bonfire

An always popular event, the attack on and destruction of an "enemy" kite balloon, was repeated this year. Rupert, who had been sun-bathing in private during the afternoon at the far end of the aerodrome, was eventually brought out to the slaughter, and, having ascended to three or four hundred feet, proceeded to do a bit of observing (counting the "gate" ?), protected by two patrolling aircraft. Three British "Siskins" from No. 41 Fighter Squadron (under Sqdn.-Ldr. P. Huskinson, M.C.) then approached, and after attacking and bringing down in flames the patrol, they turned their attention to the balloon.

This was too much for Maj. Sandbags, junr. (the old man has been pensioned off), who promptly left by parachute. But only just in time, for a lucky (?) shot from the Siskin set fire to the balloon which descended, hurriedly but splendidly, in flame and black smoke.

Yo ! Ho ! And a Bottle of —

The "Set Piece" which brought another wonderful Display to a close had a "plot" which was almost Edgar Wallace—but not quite. This time it was bad, bold Pirates that were punished via the air! These pirates, the crew of a vessel carrying munitions and aircraft, had seized the ship and taken refuge in a sparsely populated part of British Colonial territory. Having installed themselves in a planter's house (and murdered the planter and his staff!) they proceeded to erect the stolen aircraft with the intention of conveying (and ultimately disposing of) the booty to various destinations. To prevent this the British Government despatched a force of aircraft ("Gamecocks" from No. 23 Squadron, "Siskins" from No. 32 Squadron, and "Horsley" bombers from No. 36 Squadron), accompanied by "Victoria" troop carriers (from No. 9 Squadron).

As one of the pirate aircraft (impersonated by "Hyderabad" from Nos. 10 and 99 Bomber Squadrons) took off, the British fighters appeared on the scene and attacked the pirate aircraft in the air and on the ground, and also machine-gunned the buildings. As a result some of the pirates forthwith surrendered, rushing out into the open and waving white flags.

Meanwhile the bombers arrived and effectively destroyed the buildings where the remaining pirates were still showing fight. Then the troop carriers arrived and deplaned a small force of irregular regulars, who made prisoners of the surviving pirates and recovered the booty. And all lived happily ever after.

MODELS

SOCIETY OF MODEL AERONAUTICAL ENGINEERS. (S.M.A.E.)

The following team has been chosen to represent Gt. Britain in the "Wakefield" International Cup at Halton on July 19th.

W. J. Plater (Capt.) D. A. Paveley, J. Pelly-Fry, R. N. Bullock, T. H. Newell, A. T. Willis, T. H. Ives (1st Reserve), J. J. Holt (2nd Reserve).

Judges:—Lieut. Col. Kingsley-Pillers, Dr. A. P. Thurston, S. H. F. Crouch.

Timekeepers:—A. F. Houlberg, M. L. Haas, B. K. Johnson. Will members of the S.M.A.E. and affiliated clubs please note that the seaplane competition for the Lady Shelley Cup has been postponed from July 12th to August 30th. S. G. Mullins, Hon. Sec, 72, Westminster Avenue, Thornton Heath, Surrey.

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AERONAUTICAL PATENT SPECIFICATIONS

(Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motors. The numbers in brackets are those under which the Specification will be printed and abridged, etc.)

APPLIED FOR IN 1929

Published July 3, 1930

- 6,740. S. O. C. KUHLEMANN. Containers for parachutes. (319,202.)
- 6,849. N. MINORSKY. Automatic rudder controls. (318,538.)
- 7,332. G. LEINUNG. Aircraft. (330,302.)
- 14,288. J. P. BOWEN. Navigation and aviation lights. (330,375.)
- 14,968. D. H. T. MACMILLAN. Gyroscope compasses. (330,380.)
- 18,425. J. VAN DE PUTTE. Driving-devices. (313,622.)
- 20,240. E. ST. M. BRETT. Drift-indicator. (330,424.)
- 21,646. ROHRBACH METALL-FLUGZEUGBAU GES. Linings for cabins and hulls. (315,436.)
- 21,750. W. MESSERSCHMITT. Connection between ribs and spars of metal surfaces. (315,713.)

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